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Hammermill Paper Co's Agents Confer At Erie

Twenty-First Annual Conference of Paper Merchants With Members of Hammermill Organization, Held August 24-25, Proves Highly Successful Event—President Ernst R. Behrend Opens General Business Sessions—Interesting Talks Given by Vice-President Norman W. Wilson Manager of Sales Harrison B. Baldwin, and Others

ERIE, Pa., August 29, 1932.—Paper merchants who market the Hammermill products gathered in Erie, Pa., August 24 and 25, for their twenty-first annual conference with the members of the Hammermill organization. Members of the Agent's Advisory Committee spent the forenoon of the first day consulting with the officials of the Hammermill Paper Company about the program of business to be followed.

Ernst R. Behrend, president of the Hammermill Paper Company, opened the general business session at noon. Talks were given by Norman W. Wilson, vice-president of Hammermill, and Harrison R. Baldwin, manager of sales.

During the afternoon the visitors had the pleasure of listening to Bruce Barton, noted writer and advertising counsellor. Mr. Barton spoke on the history of business depressions. The speaker stated that he had never been guilty of saying, "Prosperity is just around the corner" but he was of the opinion that the present activity in the stock market would be reflected in better orders about October.

A. Ellis Frampton, advertising manager, and Donald S. Leslie, assistant manager of sales, spoke the morning of the second day's meeting. The business session continued until noon when the visitors adjourned to compete for prizes in their favorite form of outdoor recreation. Five prizes were also supplied by the agents to be competed for in golf by the Hammermill men.

All sessions of the conference were held at the Kahkwa Club.

Agents Committees Augmented

The following Hammermill agents were elected to membership on the Agents Advisory Committee: John D. Swigart, Swigart Paper Company, Chicago, Ill.; E. W. Julian, Western Newspaper Union, Omaha, Neb.; W. N. Stetson, Jr., Storrs, Bement & Co., Boston, Mass.

The following Hammermill agents were elected to membership on the Agents Advertising Committee: E. P. Magel, Crescent Paper Company, Indianapolis, Ind.; George Schall, Beekman Paper Company, St. Louis, Mo.

Prize winners in the various sporting contests were as follows:

Agent Prize Winners

GOLF: First division—Low Gross, I. W. Carpenter; Low Net, B. E. Reeves. Second Division—Low Gross, W. N. Schaefer; Low Net, C. C. Walden, Jr. Kickers Handicap—E. A. Petrequin.

OBSTACLE GOLF: 1st Prize, C. D. Smith; 2nd Prize, A. C. Damon.

HORSESHOES: 1st Prize, A. Wittler; 2nd Prize, O. A. Brunner.

BOWLING: 1st Prize, W. P. Carney; 2nd Prize, A. W. Leslie.

Hammermill Prize Winners

GOLF: 1st, Low Net, M. Harrison; 2nd, Low Net, W. F. Bromley. Kickers Handicap—1st Prize, Roger Taft; 2nd Prize, Emory Austin; 3rd Prize, Edward F. Fletcher.

Those Who Attended

M. L. Kratz, Alling & Cory Company, Buffalo, N. Y.; James E. Alcorn, Alling & Cory Company, Cleveland, Ohio; D. S. Landau, Alling & Cory Company, New York; Alan S. Chandler, Alling & Cory Company, Pittsburgh, Pa.; B. E. Reeves, Alling & Cory Co., Rochester, N. Y.; Ross P. Andrews, R. P. Andrews Paper Company, Washington, D. C.

Wm. Schaefer, R. P. Andrews Paper Company, Washington, D. C.; B. R. Moore, Andrews Paper House, York, Pa.; M. Kiesewetter, Antietam Paper Company, Inc., Hagerstown, Md.; Wiley M. Baxter, Jr., Baxter Paper Company, Baltimore, Md.; George Schall, Beacon Paper Company, St. Louis, Mo.; R. W. Roehm, Beecher, Peck & Lewis, Detroit, Mich.; George Naumann, Beecher, Peck & Lewis, Detroit, Mich.

Max Greenebaum, Beekman Paper and Card Company, New York; H. H. Winne, E. A. Bouer Company, Milwaukee, Wis.; W. J. Herrmann, E. A. Bouer Company, Milwaukee, Wis.; R. S. Bull, Bradner Smith & Co., Chicago, Ill.; E. L. Kramer, C. E. Brandt & Co., Flint, Mich.; S. B. Gaines, Capital City Paper Company, Springfield, Ill.; C. E. Roach, Capital City Paper Company, Springfield, Ill.

I. W. Carpenter, Jr., Carpenter Paper Company, Omaha, Neb.; Hubert L. Carter, Carter, Rice & Co., Boston, Mass. G. E. Caskie, Jr., Caskie Paper Company, Lynchburg, Va.; K. S. Moening, Central Paper Company, Toledo, Ohio; C. Braatsch, Chicago Paper Company, Chi-

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Paper Demand Slowly Reviving In Philadelphia

Some Headway Reported In Both Fine and Wrapping Paper Markets — Consumers Placing Larger Orders for Various Standard Grades of Paper In Anticipation of Broader Business—Adjustment of Values Confidently Looked For In Near Future

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., August 29, 1932—With a much improved inquiry and slowly reviving demand for paper, the Philadelphia industry is looking ahead to betterment with the passing of Labor Day. In both fine and wrapping paper divisions the industry appears to be making headway. Dealers report buying by customers who have not been purchasers for the past three months and who are now placing large orders in advance of the Fall season and in preparation for broader business in the coming months. Manufacturers, too, are speeding up operations with advance orders sufficient to maintain full time schedule, in some mills, for the next six weeks. Other manufacturers have placed their plants on from four to five days schedules as business warrants broader production.

With the rising demand paper dealers look for higher prices in the near future believing that paper distribution will in its broadening scale permit of adjustment of values according to the law of supply and demand. There has been no over production, although dealers are fairly well stocked with many of the standard grades that have been drifting in the dull markets of the past six months. Prices are now at rock bottom and in some grades, such as krafts, the lowest in the history of the industry. Alert paper dealers have been buying, knowing that this opportunity to stock with low priced quality papers is one that should not be overlooked in view of rising valuations with advancing business.

Container Corp. on Full Time

Container Corporation of America, Philadelphia Division, with plant in Manayunk, this month speeded up to the full working week. Benjamin M. Thomas, manager of the Philadelphia Division board mills and container plant, is taking an optimistic attitude towards the Fall, as the mill has sufficient business on hand to maintain present schedule of operations for the next six weeks.

Dealers in Co-operative Movement

With the meeting last Tuesday, held at the offices of the D. L. Ward Company, Terminal Commerce Building, and with George W. Ward, head of the firm, as host at the luncheon session, there were taken first steps in the formation of a co-operative movement for better understanding and trade practices among wrapping paper dealers and jobbers. Leaders in the Philadelphia paper industry long connected with the most prominent of its wrapping paper and specialty concerns were present and after discussion of trade problems and the need for co-operation made tentative plans to promote group activity and united effort to establish an organization that will be devoted to sound business development and better understanding among dealers and jobbers. Chester A. Spaulding, executive secretary of the National Paper Trade Association, attended this session and conferred with the committee appointed to promote such a movement, including T. H. B. Smythe, J. L. N. Smythe Company; Nathan D. Isen, Enterprise Paper Company; George W. Ward, D. L. Ward Company; W. Brelsford Killhour, Quaker City Paper Company; Edward A. Keller, Garrett-Buchanan Company; and Frank A. O'Ne of the Paper Manufacturers Company.

These leaders in the wrapping paper trade of the Quaker City discussed ways and means for formation of a co-operative group of trade associates who will organize an association devoted to the purpose of united effort in business practices that will build the industry on sounder business bases for future improvement. Mr. Spaulding outlined the details of operation of similar organizations in other cities for the benefit of the committee, that they might adopt these methods for the local group's platform. Another meeting of the committee will be held at the Typothetae headquarters on August 30 to perfect plans for the organization.

Garrett Buchanan Co. Expands

With the appointment of Harry A. Fleming as representative of the Announcement Division of the Garrett-Buchanan Company, 16-20 South 6th street, the firm announces the enlargement of that department and the extension of the social, engraving and greeting card stocks to conform with its plans of development. Mr. Fleming is well known to the trades he will cover, having for many years been linked with the allied industries which he will cover in his work for the Garrett-Buchanan Company. Following the extension of the announcement division, the Garrett-Buchanan Company, has issued a folder showing the line of Glendale Announcements, envelopes, sheets, cards and other social stationery made by the American Writing Paper Company, which will be carried in stock in the full assortment of wedding, mourning, and social announcements as well as commercial announcements for the engraving, greeting card and social stationery trades.

Lamp Shade Department Developed

Another division of the Garrett-Buchanan Company to be developed is that of the lamp shade department, over which Robert Crawford has been placed. Mr. Crawford was formerly connected with the D. L. Ward Company. The Garrett-Buchanan Company will stock a full assortment of lamp shade papers, both fancy and plain parchments and papers used by lamp shade manufacturers and converters and for other industries using these papers.

Raymond & McNutt Revises Penn Vellums

With economies effected in the manufacture of its own line of Penn Vellum announcements, Raymond & McNutt, 9th and Sansom streets, have revised prices accordingly and passed the savings so gained on to the consumers. While there has been effected economies in manufacture the same high quality has been maintained in the production of the papers of the Penn Vellums the saving having been passed on to the consumers and distributors on the weddings and announcement stocks being applied to the revised prices that meet present day requirements in business.

Beck Paper Co. Adds to Staff

With the recent death of two of its sales staff, the Beck Paper Company, Terminal Commerce Building, has filled the existing vacancies by addition of other salesmen.

Walter D. Doscher, who for many years was manager of the Philadelphia offices of the Louis DeJonge Company, has been assigned to cover the printing trade as newly appointed representative of the Beck company and Eden M. Hood, formerly with the Paper Service Company, has been made representative of the firm covering the paper box trade as salesman in the paper box supply department.

John H. Hoffman Passes

John H. Hoffman, who for more than a score of years was connected with the sales staff of the Beck Paper Company, Terminal Commerce Building, passed away at his home in this city last Monday following several months illness. He represented the firm in the Philadelphia territory.

Dill & Collins Papers Used at Congress

The Dill & Collins Company's paper, Improved Printflex, was used in the announcement broadside made for the Cruise of the Eucharistic Congress, copies of which now are being sent to paper distributors and consumers showing the effectiveness of the printing, half tones and color illustration of the points of interest throughout Europe included in the sight seeing tour in the program of the Congress. It was sent by the Consulich Line in announcing the sailing of the *Saturnia,* which carried the delegates and tourists to the Congress.

Thomas M. Royal to Return from Europe

Thomas M. Royal, head of Thomas M. Royal & Co. Inc., who with Mrs. Royal, has been summering in Europe, will make the return trip on the *Majestic,* sailing for American ports September 8th.

Morgan H. Thomas Touring New England

Morgan H. Thomas, who has been touring New England throughout August, will return to the city and his desk at the Garrett-Buchanan Company, of which he is president, after Labor Day.

Elias Magil To Wed

Elias Magil, who recently graduated in law from the University of Pennsylvania and is associated with the firm of Sterling & Willing will wed Miss Marian Techosky at Temple Har Zion, 54th street and Wynnefield avenue, on September 11. He is the son of Myer Magil, head of the Penn Card and Paper Company, 410 Race street. They will leave for a vacation in the Catskill Mountains following the ceremony. The younger Magil while a student at the university joined his father in the business during the summer vacations.

Paper Mill Employment

Decreases in both payrolls and employment in the paper and pulp and paper box industries are shown by the report of the Bureau of Labor Statistics, Department of Labor from June to July.

Reports were received by the Bureau from 401 paper and pulp mills which gave their July employment at 74,673, a decrease of 1.4 per cent from June and of 11 per cent from July of last year. The average weekly July payrolls in these mills were $1,266,611, a decrease of 7.9 per cent from June and of 32.6 per cent from July of last year.

The Bureau received reports also from 312 paper box factories which gave their July employment at 19,105, a decrease of 3.8 per cent from June and of 17 per cent from July of last year. The average weekly July payrolls in these plants were $322,999, a decrease of 8.6 per cent from June and 31.3 per cent from July of last year.

Swedish Pulp Mills Strike Settled

WASHINGTON, D. C., August 31, 1932.—The strike in the Swedish wood pulp industry, which started in February this year, and affected about 15,000 workers, was settled recently, through acceptance of the new wage proposal made by the Government Mediation Commission and work will be resumed in all the Swedish wood pulp mills as soon as possible, according to a report to the Commerce Department from Trade Commissioner Basil D. Dahl, Stockholm.

A general wage reduction of 7 per cent both in piecework rates and hourly rates was included in the new contract. Some of the minor changes made are in favor of the employers. It was feared that the strike at one time would lead to serious events.

Initial efforts at mediation were unsuccessful and on February 18 the employers put into effect a 6 per cent wage cut in hourly wages and 12 per cent in piece work rates. Workers immediately called for strikes in eight of the largest mills producing pulp for export. After unsuccesful governmental mediation, the strike was extended to take in all those mills producing for export.

Each of the previous proposals made by the mediating commission which were rejected by the workers was more favorable to the latter than the proposal just accepted. The new wage agreement expires December 31, 1932, it was stated.

Rate Decisions on Paper

WASHINGTON, D. C., August 29, 1932.—The Interstate Commerce Commission has been given a tentative decision by one of its Examiners in connection with the complaint of the Hopper Paper Company, Inc., against the Aberdeen & Rockfish Railroad.

The Examiner found that rates charged on less than carload shipments of certain kinds of loose leaf book fillers from Richmond, Va., to various points in southern territory are not inapplicable but some of the rates were found unreasonable.

It was further found that charges collected and demanded on mixed carloads of the same commodity and certain other paper articles shipped from and to the above described points were applicable but unreasonable prior to May 1, 1931, and inapplicable and unreasonable on and subsequent thereto. Rates for the future were prescribed and reparation awarded.

In another case by another Examiner in the complaint of the Badger Paper Mills against the Chicago & North Western Railroad "Rates on pulpwood, in carloads, from points in Michigan and upper peninsula and Wisconsin to Peshtigo, Wis., in interstate commerce found not unreasonable. Complaint dismissed."

Folding Boxes, Cones and Tubes

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 28, 1932.—The Simplified Practice Division, Department of Commerce is now sending to the trade recommendations covering folding boxes and also paper cones and tubes for textile winding.

The box specification program, which becomes effective on January 1, proposed and developed by the retail department and specialty stores with the assistance of the manufacturers, provides 59 selected sizes of this type of box, taking the place of 262 formerly used.

The cone and tube program will provide for the length, inside diameter, weight per 1,000, and color for parallel paper tubes and cones which are used for winding warp and knitting yarns, silk, rayon, hosiery yarns, etc.

Quebec Government Aids Pulpwood Industries

Cabinet Passes Order-In-Council Reducing Ground Rent and Stumpage Dues—Will Encourage Timber Cutting In Forestry Limits, Even While Taking Into Account Existing Economic Conditions—Season's Cut Estimated At 500,000,000 Feet

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., August 29, 1932—The Quebec Government has taken steps to help the lumber and pulpwood industries of the Province and relieve unemployment among married men engaged in cutting operations. The Cabinet has passed an Order-in-Council reducing ground rent and stumpage dues and at the same time stipulating that a "reasonable wage" must be paid to the lumberjacks and that preference be given married men or those caring for families.

Ground rents are reduced from $8 per acre to $5. Stumpage dues on pulpwood are cut from $2.70 per 1,000 feet to $2, equivalent to $1 per cord. No provision was made for reduction in sawn lumber stumpage dues.

Reductions follow representations made to the government by lumbermen.

Only Mills Operating Full Time To Benefit

The Order-in-Council provides that only companies operating during the full season will benefit. Lumbermen must employ residents of Quebec, preference must be given to married men or those caring for families and "reasonable wages" must be paid.

"By these means the Government hopes to encourage the cutting of timber in the forestry limits even while taking into account the existing economic conditions," concludes the order-in-council. Department of Lands and Forests estimates the season's cut at 500,000,000 feet.

The Conference and the Industry

As intimated last week, the pulp and paper industry was not benefited by the agreements at the Imperial Economic Conference at Ottawa beyond the indirect benefit arising from the frequential duties to be established on lumber in Great Britain. Some of the papers here have been referring in congratulatory terms to the fact that one of the agreements was to continue the preferences established under the recent tariff imports in England, whereby certain grades of wrapping paper and paper board from Canada are admitted free into the United Kingdom while duties of 10 per cent in some classifications and 15 per cent in other are levied against foreign products. It is true that these preferences will continue, but under present conditions they are unimportant. As a matter of fact, the present rate of exchange affecting the pound sterling as against the Canadian dollar more than offsets the preference, and the business is going to Scandinavian countries which, like Britain, have departed from the gold standard.

As regards the lumber industry, in which the larger pulp and paper companies are interested, Premier Taschereau has expressed disappointment at the results of the Conference, holding that little material gain will result.

Other authorities express the conviction that the 10 per cent preference on lumber, with an assured quota market in Great Britain for 2,500,000,000 feet is bound to result in substantial benefit to the lumber industry of Quebec. This view is upheld by Col. Henry Morgan, head of the official delegation from the British timber trade. He has inspected a number of mills in the Province since the conclusion of the Conference, and he states that the larger mills are certainly well able to compete in the British market, and the preference will be a substantial help in meeting competition from Russia, the Baltic States, etc.

Price Bros. & Co. May Benefit

Price Bros. & Co. is one of the companies expected to benefit. To its large pulp and paper interests is allied a big lumbering industry. The annual production of its sawmills in past years has run to about 60,000,000 feet of lumber, 42,000,000 shingles, and 73,000,000 laths, in addition to other lumber products.

Personnel of Price Bros.' Protective Committee

The Bondholders' Protective Committee proposed in connection with the reorganization of Price Bros & Co. is now virtually completed. The personnel, it is expected, will comprise the following: Ross H. McMaster, president, Steel Company of Canada, Montreal; Thomas Bradshaw, president North American Life Assurance Company, Toronto; the Hon. John Hall Kelly, K. C., member of Legislative Council, Quebec; James A. Eccles, president, Harris, Forbes & Co. Ltd., Montreal; W. Eugene McGregor, president, Chase Harris Forbes Corporation, Boston, and Murray W. Dodge, executive vice-president, Chase Harris Forbes Corp., New York.

It is reported that some difficulty had been experienced in earlier negotiations, American bondholders asking for larger representation on the committee than the Canadian holders were willing to concede.

Indianapolis Demand Improves

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., August 29, 1932.—While there is virtually little change in most of the paper list this week from the week before, there is more and more talk about better times ahead. Just how much foundation there is to this talk is somewhat problematical, but it is here and the paper men seem to be in better spirits. The fine paper market is a trifle more active with the opening of the public schools of the state only a week away. There is also a fair amount of demand for social stationary. Book papers are not so active just now, but stocks in the users' hands are known to be low and any upturn will react immediately on the jobbers and manufacturers.

Summer specialties, following a return of hot weather after a cool period, are going nicely again. The year has been average at least with regard to these specialties.

A bright spot in the trade is seen in increased inquiries in the wrapping paper field. The furniture industry particularly is getting into the market for crating paper. As an indication of what may be expected, a local lumber mill representative has just sold an enormous order for short length lumber to one of the large furniture factories the lumber to be used exclusively for crating purposes. This means more paper to be sold.

Box factories in the state report more inquiries, but a very slight increase in orders. There is much haggling over prices and the mills will not be put on increased production until there is a more decided turn for the better. News print demand is spotted. Papers in the larger industrial centers have cut their sizes due to a decrease in local advertising, but the fall season is expected to see a return on the part of the smaller business men.

Consolidated Paper Mills Adopt Six-Hour Day

Change From Eight-Hour Day Now Effective In Practically All Departments At Wisconsin Rapids and Biron, Wis.—Stevens Point Mill of Consolidated Not Affected To Date and Will Continue to Operate On Eight-Hour Shift

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., August 29, 1932.—Mills of the Consolidated Water Power and Paper Company at Wisconsin Rapids and Biron, Wis., have adopted the six hour day, according to announcement of C. E. Jackson, general superintendent. The change from the eight hour day has been made gradually over a period of three years and is now effective in practically all departments.

The Stevens Point mill of the Consolidated company is not affected to date by the new arrangement, and continues to operate on the eight-hour shift. By having four shifts of six hours each, lay offs are eliminated and one-third more men are kept at work.

Kimberly Memorial Building

The J. A. Kimberly Memorial Building which will house the research laboratories and library of the Institute of Paper Chemistry at Lawrence College, Appleton, Wis., has its exterior completed. The interior work is under way and is expected to be completed in time to dedicate the structure and open it to students when the September term of the college starts.

By virtue of establishing an institution of this kind, Wisconsin is taking a world lead in paper chemistry research and Appleton is becoming the focal point of experimentation in the industry, according to Dr. Henry Merritt Wriston, president of the college and director of the Institute. The school, which accepts only graduate students, is regarded as more modern than those of Germany and the Scandinavian countries, due to its equipment.

Its present facilities include a rod mill, three small beaters, a 150-pound rotary boiler and a 100-pound Alleghany metal digester lined with carbon brick. The miniature mill also has cypress blow pits and a small wet machine. As soon as the new building is completed and in use, officials of the Institute will begin laying plans for a miniature paper mill so all processes will be available for practical instruction and experimentation.

Wisconsin paper mills, which have provided funds to operate the Institute, and mills in other parts of the country, have found the school valuable, because it eliminates the expense of training technical men in the mills, sometimes a very costly procedure. Nearly all of the equipment has been donated by manufacturers.

Wood Donated to Oconto Falls

Because of the widespread unemployment due in part to the idleness of the Falls Manufacturing Company's paper mill at Oconto Falls, Wis., the company has donated 2,000 cords of wood to the city. The wood will be cut into firewood lengths and distributed by a committee appointed by the city council.

Miss Callie Nason Dead

Miss Callie Nason, one of the few women in the United States who has had the distinction of operating a paper mill, died last week at her home at Wisconsin Rapids, Wis. The end came only a few days after that of a brother. Miss Nason was 66 years old.

In 1888, Miss Nason gave up school teaching and entered the employ of the Centralia Pulp and Water Power Company, owners of the first paper mill built on the Wisconsin River, as bookkeeper. The mill later came into the posession of George A. Whiting, of Neenah, Wis. and G. F. Steel. When its manager, Frank Garrison, died in 1905, Miss Nason succeeded him as secretary and general manager of the company. She was at that time the only woman in the United States holding such a position, had 100 men under her charge, and the mill produced 35 tons of paper daily. She resigned in 1919 on account of ill health.

Water Power Fight Renewed

Renewal of the fight between water power owners on the Fox River and riparian land owners is seen in a petition filed with the federal government by the directors of the Association for Relief of High Water asking the removal of flush boards at the dam at Menasha, Wis., where the storage of water in Lake Winnebago is controlled. The association desires to have the 15-inch level above the crest of the dam restored, instead of the 21¼ inch level established by a government order several years ago. Paper mills want the higher level maintained so as to insure a more adequate water supply in the summer months, and communities along the river want the higher level to preserve sanitation. New hearings on the matter will probably be arranged.

New Paper House for Alabama

The S. P. Richards Paper Company of Atlanta, Ga., has just finished moving into its new branch store in Montgomery, Ala., located at 531 North Lawrence street. Phone Cedar 1535.

The company for the past two years has maintained a stock in one of the public warehouses in Montgomery, handling only original packages, and very limited lines, but under the new organization the lines will be increased materially, and the service will equal and possibly surpass that of the average paper houses in cities of this size.

All business will be handled directly there under the management of D. G. Scott, now residing in Montgomery, but formerly on the sales staff of the main Atlanta house. All purchasing and accounting, however, will be handled from the main Atlanta house.

New Record for Imported Pulpwood

ALBANY, N. Y., August 29, 1932.—Shipments of imported pulpwood are expected to establish a new record at the local port terminal this year. A vessel carrying several thousand tons of the Russian product docked here early this week which was followed by a large consignment from Sweden. Another vessel containing a cargo of the Swedish product is also scheduled to arrive here tomorrow and the unloading of the vessels is expected to consume several days. A large number of freight cars are ready for shipping the woodpulp to mills in Northern New York and a large force of stevedores are aiding in the loading process. The imported woodpulp being brought here was contracted for by the International Paper Co. and Union Bag and Paper Company some time ago.

Demand for Paper Continues Light In Chicago

Fine Paper Market Slightly Irregular, With Bonds and Ledgers Reported Quiet and Books and Covers Practically Unchanged—Kraft Wrapping Paper Situation Continues Unsatisfactory—News Print Paper Movement Comparatively Quiet

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., August 29, 1932.—Disappointing near demoralization of the kraft market is the chief topic of discussion in Chicago paper markets this week. Many are the discussions centering around the "bargains" the market is offering as manufacturers seem to lose sight of the fact that a profitable business is the only kind. Other markets, as evidenced by local reports, are feeling the uncertainty of the situation but are holding up rather firmly with the reported exception of the sulphite bond market which is characterized as "spotty" although evidently no worse off than last week.

Demand in other lines has seemingly reached its minimum and a number of jobbers and sales representatives are expecting a fair turn up immediately following Labor Day. There is still a "feeling" of optimism in the belief that improved conditions will soon be registered. The continued efforts of the Chicago and Illinois press to report all optimistic happenings at great length—and the renewed interest in the stock market as a business regulator—are helping to create this intangibility which, if sufficiently fostered, may bring the long hoped for results.

Bonds and ledgers were reported quiet. News print consumption is said to be slightly lower while ground wood mills are continuing to work on a sharply curtailed basis. Books and covers remain practically unchanged over last week.

Government Competition Criticized

As an instance of the wasteful manner in which the government enters into business and imposes injury upon the business man, James L. Donnelly, executive vice president of the Illinois Manufacturers Association, at a hearing in South Bend on August 23, cited the example of the government's manufacture of envelopes. There are about thirty-five envelope makers in Illinois, said Mr. Donnelly, while the Federal Government, manufacturing about 13,000,000 envelopes daily, uses its postoffices as sales agencies. A printer under federal contract in Dayton, Ohio, he said, makes about 13,000,000 of these envelopes a day, which is more than eight times the output of the largest envelope plant in Illinois. "It must be remembered," he said in testimony which is certain to be of interest of paper manufacturers who supply the envelope makers, "that the government as a manufacturer of envelopes has no sales or overhead costs and no taxes to pay, so it is easy to recognize the unfair competition which the private citizen is up against." Mr. Donnelly's appearance was before the Shannon congressional committee which is conducting an inquiry into government competition with private business. The Illinois leader also said that "federal expenditures leaped from $892,000,000 in 1913 to an estimated $4,667,000,000 in 1932 and that this $3,775,000,000 increase over a period of nineteen years can, to a large extent, be traced directly to the government's business and commercial ventures, most of which have operated at a loss."

Salesmen Plan Final Golf Outing

Courtney Reeves, Allied Paper Company, and chairman of the golf comittee of the Middle West division of the Salesmens Association of the Paper Industry, reports an unprecedented amount of interest in the golf finale to be held at the Olympia Fields Country Club on September 16. Salesmen and guests will be attracted, says Mr. Courtney, not only by the facilities of the great Chicago club but by the fact that competition with the New York Division and for the Presidents' Harbison and other trophies, will be in full swing.

News of the Trade

Bermingham & Prosser, Chicago, has been appointed Chicago distributor of Adirondack Bond and Ledger, a product of the International Paper Company, according to an announcement contained in an effective four page folder headed "Covering Chicago." Copy reads: "To the many customers and friends of this old successful paper house this announcement will mean a continuation of a progressive policy of giving the utmost in service and paper values. Adirondack Bond and Ledger bring to the printer a group of water marked, all-sulphite papers of superior printing qualities, low cost and wide consumer acceptance. "Users are also urged to obtain a copy of new Adirondack sample book. Adirondack Bond will be carried by Bermingham & Prosser in twelve colors and bright white; while Adirondack Ledger will be stocked in White and Buff.

The activities of Leo Altholz, Inlander-Steindler Company, Chicago, are not confined solely to the development of his company and of the Chicago Paper Association, of which he is a past president and chairman of the board of directors. A committee headed by Mr. Altholz has succeeded in bringing Cantor Jacob Mason, of Odessa, Russia, to Chicago to interpret the synagogal prayers for Chicago Jewry during the high holidays of Rosh Hashanah and Yom Kippur. A reception in honor of Cantor Mason was given at the home of Mr. Altholz, 6755 Crandon Avenue, Chicago, on the evening of August 23.

H. T. Smith, Bradner Smith & Co., Chicago paper house, has been elected a member of the Board of Directors of the West Central Association, a group representing the interests of both tenants and owners of property in an important business district west of the Chicago River. The district has, within the past few years, become one of the important paper and printing centers not only in Chicago but in the entire United States.

Gets Patent on Fiber Cases

LOWVILLE, N. Y., August 29, 1932.—It was announced this week that Axel Malm, consulting engineer of the Smith-Lewis Fiber Can Company, has invented an automatic machine for making fiber cans. The inventor is a native of Denmark and has made a study of papermaking equipment for several years. He is a member of the American Society of Mechanical Engineers.

The new machine is considered to be the fastest ever invented for the production of fiber cans. The invention embodies a number of patents of the inventor where rotary principles are concerned. Construction of the various parts were made in plants in this section under supervision of the inventor but the assembly work was completed at the local plant where the machine is now in operation.

Ontario Mills Anticipate Increased Demand

Following Curtailed Summer Production, Increased Seasonal Requests From Paper Merchants and Consumers In September and October Should Result In More Normal Operations During Closing Months of Year—Book Paper Plants Fairly Active

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, ONT., August 29, 1932—In common with most other lines of industry the paper trade, both wholesale and manufacturing, is looking forward to a rearrangement of tariffs within the Empire that will react favorably on general business in Canada, as a result of the Imperial Economic Conference just ended at Ottawa. It is believed that when the full fruition of the parley comes, within the next few months, the pulp and paper industry will be found to have benefitted materially. Already, although not due to the Conference, there are signs of returning confidence and they are visible in the paper trade. Many of the wholesalers say that while volume of paper sales was light during August, trade stood up rather better than they expected. The month saw the height of the holiday season and most of the paper houses were prepared for light sales volume. Light it was but some lines sold fairly well. These were mostly of the fine paper class of the cheaper grades. Wholesalers have not yet been able to educate the paper consumer out of the practice of buying the cheaper grades of stock and most of the selling is still on the small order basis.

For the most part activity among the paper manufacturers was light during August. In nearly all departments operations have been curtailed all summer but it is expected that September or the beginning of October will see a quickening of demand by wholesalers and consumers that will send manufacturing operations well on the road to normal. Book paper mills have been fairly busy and have little to complain of, while some of the plants manufacturing the cheaper lines of fine paper have been quite active. Mills turning out bonds, writings and ledgers have had difficulty in keeping up with the machines and business is not likely to improve much in these lines until the public begins asking for better class stock. There has been a slight improvement in activity among the coarse paper manufacturers but that section of the paper market is not yet back to where it should be and it is still lagging behind the fine paper section in point of sales. Both wrapping and paper bags are moving altogether too slowly and kraft mills report a light demand for the product in both the east and west of Canada, while the export trade, also, has fallen off. Light weight paper manufacturers report light sales and while that was one section of the paper trade that had hitherto been reported as quite prosperous, the sales of tissues, toilets and light papers generally have fallen off considerably during the past six months.

Power Service Deal Progressing

While there is very good prospect of the Hydro Electric Power Commission of Ontario consummating the deal by which the Province takes over the power project in Abitibi Canyon from the Abitibi Power and Paper Company, deposit of bonds of The Ontario Power Service Corporation is taking place satisfactorily. It is the general belief in paper circles and amongst the bond dealers that the deal will go through. While the offer states that 90 per cent of the bond holders must deposit their bonds by October 1, provision is made for extension of the time of deposit and the commission may purchase, if it desires, all of the bonds deposited whether or not they aggregate 90 per cent of the total issue. If 90 per cent of the bonds are deposited, the commission has obligated itself to their purchase by payments of 90 per cent value in bonds of the Hydro Electric Power Commission of Ontario, guaranteed by the Province, bearing interest at the rate of 3½ per cent from October 1, 1932, to 1937, 4 per cent thereafter to October 1, 1942, and 5 per cent thereafter until maturity October 1, 1952. It is interesting to note that a spread of some ten points has existed between the current market for O.P.S. Bonds and the existing market for Ontario Hydro Provincial Guaranteed Bonds after giving effect to the proposed exchange. The offer made by the Hydro Electric Power Commission has yet to be accepted by 90 per cent of Ontario Power Service Bond holders and until this offer is accepted it is not absolutely definite that the offer will go through.

Notes and Jottings of the Trade

During the period that power was permitted to be exported from Port Francis International Falls, while the damage resulting from an explosion in the turbine room was being repaired, the news print orders formerly taken care of at the International Falls, Ltd., mills were made at the Fort Francis mill. The two machines were operated at Fort Francis during May and June and three machines are now being operated at the plant. Only the sulphite and the board mills are running on the American side.

Interlake Tissue Mills, Ltd., head office Toronto, recently opened a direct factory branch in the John Deere Building, Princess street, Winnipeg, for distributing its line of paper products in Manitoba. P. Christie, who has had a number of years experience with several large paper concerns and who is well known throughout the trade, has been appointed manager.

A. A. Schom, of the Ontario Paper Company, Thorold, Ont., and a number of other paper manufacturers from the Niagara Peninsula, attended the funeral in Chicago of Mrs. Katharine McCormick, mother of the president of the Ontario Paper Company, and publisher of the *Chicago Tribune*, which was held from her son's home in Chicago.

Interlake Tissue Mills, Ltd., has installed a new toilet paper making machine in its plant at Merritton, Ont., a part of a program of improvements now taking place.

Three new paper lines are announced by the E. B. Eddy Company, Ltd. These consist of "Ebeco", a high grade manilla toilet roll of 700 sheets; "Sanitoy", a semi-bleached white roll of 1,000 sheets (both of these grades are sterilized); and a fancy line of colored serviettes, also sterilized, and wrapped in packages with cellophane. These may be had in pink, green or canary and in packages of 25, 30, 40, 50, 60 or 80.

The Denison Manufacturing Company of Canada, Ltd., was recently registered at Victoria, B. C. as an extra provincial company. The firm's papers shows it to have paid-up capitalization of $40,000, and registered offices at Drummondville, Que. It has British Columbia registered offices at the company's own plant, 3427 West 22nd Avenue, Vancouver. The company is officially described as dealers in box labels, crepe paper, and miscellaneous paper specialties.

Obituary

A. D. Bassett

Word has been received of the death of A. D. Bassett, long and favorably known to the paper trade. Mr. Bassett, who was born in Lee, Mass., in 1868, died in Los Angeles, August 6, 1932.

Mr. Bassett received his practical training in the paper mill at East Lee, Mass. He came from a prominent family of paper manufacturers and jobbers, and was considered one of the finest experts in the paper industry. He entered the employ of a relative, H. C. Hulbert, pioneer paper jobber, at 53 Beekman street, New York, at the age of 17, where he remained until Governor Flower of New York State arranged with the International Paper Company to send him to build and operate a mill for them in the Adirondacks. Here he remained for four years.

Later on he was associated with his brother in the firm of Bassett & Sutphin in New York City, leaving to become New York representative for the Champion Coated Paper Company, of Hamilton, Ohio, and several years later he became sales manager of the Parsons Pulp and Lumber Company of Philadelphia, and Parsons, West Virginia. In 1914 Mr. Bassett moved to Los Angeles on account of ill health. During his sojourn on the Coast, he was manager of sales for the Knapp & Baster Company. Later on he returned to New York and for several years was associated with the International Paper Company.

Ill health again compelled him to return to the Pacific Coast, where he put up a gallant fight for health, but heart trouble at last took its toll. The paper industry has indeed lost one of its most capable and efficient workers. Mr. Bassett was greatly beloved by a legion of friends for his kindly and human interests—a man of great personal charm and unusual ability. He is survived by his widow, who resides in Los Angeles, Cal.

Mrs. Alan G. Goldsmith

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, August 29, 1932.—A business trip of Alan G. Goldsmith, secretary of the Mead Corporation of this city, to Chicago last week was turned into deep sorrow by the sudden death of his wife, Mary B. Goldsmith, who had accompanied him to that city.

Mrs. Goldsmith seemed in excellent health when she left her home in Harmon Terrace, Oakwood, with her husband on the trip to Chicago, but a heart ailment developed and she passed away, her death coming with startling suddenness.

Mrs. Goldsmith was the daughter of Mr. and Mrs. John Boyd, of Middletown. Besides her husband she is survived by her parents; her son, John Alan Goldsmith, who was visiting in the East at the time of his mother's demise; and her sister, Mrs. Mark Vail.

Funeral services for Mrs. Goldsmith were conducted Friday afternoon at 3 o'clock at the home of her parents in Middletown. Burial was made in the Middletown cemetery.

George D. Jones

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., August 29, 1932.—George Davenport Jones, president of the Seaman Paper Company, 410 North Michigan Avenue, Chicago, died on August 24 in the Presbyterian Hospital following an illness of three months. He was sixty years of age. The paper executive was a well known leader in the industry and played an extremely important part in the various combinations which the Seaman organization effected within the past two or three years. Mr. Jones lived in Kenilworth and was a member of the Chicago Athletic Association and the Skokie Country Club. A number of paper executives who had been acquainted with Mr. Jones for many years were present at the funeral.

Charles W. Baxter

The Downingtown Paper Company, of Downingtown, Pa., announces with profound sorrow and regret the death of their esteemed representative, Charles W. Baxter, on Friday, August 12.

Hamilton's Fire Losses

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, August 29, 1932.—Considerable interest was manifested this week in the report of Fire Chief William Conlin in Hamilton, in which it was shown that the losses during the past seven months amounted to $131,096 to buildings and contents and that $100,000 of the total was sustained at the plant of the Leshner Paper Stock Corporation.

The paper supply and stock warehouses were partly destroyed by a fire which assumed threatening proportions and enveloped the city in a dense smoke, making it impossible even for persons some distance from the scene of the blaze to cross the street in safety. Suppressing the blaze was one of the most difficult tasks ever faced by the Hamilton department because of the heavy smoke.

After considerable delay the site was cleared, the authorities taking action requiring that the same be cleaned up because of complaints of residents of the neighborhood from the odors arising from the debris. Preparations are going forward for the rebuilding of the warehouses.

To Make Improvements at Corinth

[FROM OUR REGULAR CORRESPONDENT]

CORINTH, N. Y., August 29, 1932.—Plans are under way for making improvements at the local branch of the International Paper Company in an effort to make it among the leading ground wood specialty mills in the country. It is expected that a year will be needed in carrying out the project and a large force of workmen are to be hired. Indications now are that the eight-hour-working day will soon be re-established to succeed the shorter schedule and that an era of better times are directly ahead.

It is also reported that an increased volume of orders are being received which will guarantee the operation of the entire equipment on steady schedules for an indefinite period. The plant is now running near normal capacity. At a meeting of executives held this week here considerable business was transacted. Improvements of the past and future were discussed and it is believed that a brief period will witness the displacement of the restricted program inaugurated about two years ago which resulted in laying off some employees. A number of former employees have already been recalled.

William Bronk Returns to Carthage

[FROM OUR REGULAR CORRESPONDENT]

CARTHAGE, N. Y., August 29, 1932.—William Bronk, well known in the paper industry, has returned here where he plans to make his home. He was connected with the Champion Paper Mills as superintendent until about two years ago when he moved to Eau Claire, Wis., to take a similar position in a plant there. He has also held responsible positions with various branches of the St. Regis Paper Company. His plans for the future are not definite.

New York Trade Jottings

Walter Hicks, of Daniel M. Hicks, Inc., dealers in paper mill supplies, of 200 Fifth Avenue, New York, is spending a hard-earned vacation at his summer recidence on Shelter Island, N. Y.

* * *

Downtown Carton Company, paper boxes, has been chartered under the laws of the State of New York with a capital stock of $20,000. A. R. Zaldin, of 5001 Church Avenue, Brooklyn, N. Y., was the attorney.

* * *

Daller Carton Company, paper boxes, etc., has been incorporated under the laws of New York State with a capital stock of 190 shares common. Warfield & Brown, of 247 Park Avenue, New York, wree the attorneys.

* * *

The Joint Committee on Approved Pulp Testing Chemists for the Paper Industry of the United States, with headquarters at 370 Lexington Avenue, New York, announces that E. O. Houghton, of the Restigouche Company, Ltd., Campbellton, New Brunswick, has been accepted by the committee as an approved mill pulp testing chemist, and is listed as such, effective August 22, 1932.

* * *

The National Association of Waste Material Dealers, New York, has completed a wire canvas of key concerns in the waste material industry from Boston to San Francisco and as a result announces with certainty that the depression is on the way out. Price advances run as high as one hundred per cent in some instances.

* * *

Knut Jason Lundahl, formerly of New York, in the capacity of personal representative of the Swedish Pulp Company, has recently been appointed sales manager for the United States Division in Stockholm and will in the future be a resident of that city.

* * *

The executive committee of the Waste Paper Institute, a Division of the National Association of Waste Material Dealers, Inc. with headquarters at 1109 Times Building, New York, has instructed its executive secretary, subject only to the approval of the board of directors of the parent association, to take prompt steps either through cooperation with the Federal Trade Commission or through a formal complaint filed with the Department of Justice to determine once and for all as to whether centralized buying as practiced by a group of board mills in the East and in the West is in restraint of trade or in any way violates the Anti Trust Laws.

In its announcement, the Waste Paper Institute states: "It is hoped that the board mills constituting the two groups will voluntarily agree to be guided by the views of the Federal Trade Commission which at the present time is making an investigation based on a complaint which has been filed by the Commission against the Western group but if they persist in retaining this objectionable group buying plan, the Waste Paper Institute will press vigorously either a complaint to the Department of Justice or some other action which will bring a determination of the legality of the scheme which undeniably results in a control of prices."

Insulating Standards Effective Sept. 15

WASHINGTON, D. C., August 31, 1932.—Harry H. Streidle, of the Division of Trade Standards, Bureau of Standards announces that on September 15 the commercial standard for fiber insulating board will be effective.

Bids for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 31, 1932.—The Government Printing Office has received the following bids for 2,000 sheets of red glazed paper; Mathers-Lamm Paper Company, at $8.50, $11.50 and $11.75 per M sheets; Whitaker Paper Company, $10.70; R. P. Andrews Paper Company, $8.00 and $10.00; Middlesex Products Company, $8.10; and Reese & Reese, Inc., $8.50.

The Government Printing Office has received the following bids for 8,850 pounds of 26 x 42 No. 1 rope manila drumhead paper; R. P. Andrews Paper Company, at 12.86 cents and 7.75 cents per pound; Old Dominion Paper Company, 13.24 cents; Reese & Reese, Inc., 12.95 cents; Charles G. Stott & Co., 14 cents and 13.91 cents; Virginia Paper Company, 6 cents; Barton, Duer & Koch Paper Company, 12.97 cents; Mathers-Lamm Paper Company, 12.99 cents; Whitaker Paper Company, 13 cents; Stanford Paper Company, 13.5 cents; Walker-Goulard-Plehn Company, 13.5 cents less 2 per cent; Tarentum Mills, 10.5 cents; and Dobler & Mudge, 13.38 cents.

For 396 pounds of 28 x 42 golden rod coated book paper; Stanford Paper Company, at 12.125 cents per pound; Virginia Paper Company, 12 cents; Whitaker Paper Company, 15 cents; R. P. Andrews Paper Company, 20.29 cents and 22.17 cents; Polygraphic Company of America, 40 cents plus delivery charges; and Mathers-Lamm Paper Company, 13 cents.

May Arbitrate Union Bag Strike

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., August 22, 1932.—At a meeting of the striking employees of the Union Bag and Paper Corporation it was suggested by John P. Burke, president of the International Brotherhood of Pulp, Sulphite and Paper Mill Union, that a settlement of the wage question might be solved by arbitration. He advocated the appointment of a commission composed of representatives of the company, the striking employees and also President Hoover or Governor Roosevelt. "If the company refuses to arbitrate the only thing for us to do is to appeal to organized labor not to patronize their products," he said.

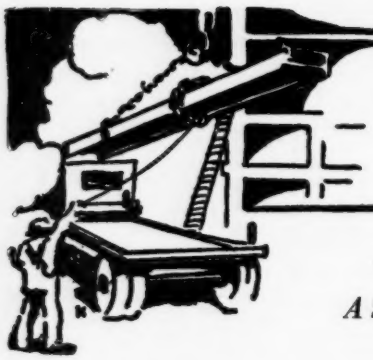
He emphasized the fact that for many years the company recognized the principle of collective bargaining but reversed their attitude when the open shop was adopted recently. He declared that the company tried to effect a greater wage reduction than any other concern in the state and pointed out that employees in neighboring mills had been requested to take cuts ranging from eight to ten per cent.

To Check Unfair Competition

Prompt action has been taken by the Import Committee of the American Paper Industry to check what is believed to be unfair competition in the importation of kraft wrapping paper and M. G. Sulphite, being offered by Swedish mills at very low prices.

"Complaint of undervaluation has already been made to the Government officials," said Warren B. Bullock, manager of the committee, "and a complaint of dumping will follow immediately. The foreign paper is being offered at such low prices that it does not seem possible that the prices can be quoted with the payment of proper customs duties.

"The particular cases in which action is being taken are offerings of Swedish kraft wrapping paper offered at $2.75, and of Swedish machine glazed sulphite, offered at $3.25. If these quotations were correct, the Swedish mills would be receiving hardly more than a fair price for news print."



CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Baldwinsville, N. Y.—The National Cellulose Corporation, manufacturer of tissue, crepe and kindred paper stocks, has approved plans for a new one-story addition to local mill and will begin superstructure at once. Unit is reported to cost over $40,000, with equipment and will be arranged to give employment to about 80 additional operatives. The mill is now running on a capacity schedule, 24-hour day basis, and is said to have booked orders to insure continuance for some weeks to come. New York City offices of company are at 366 Fifth avenue.

Buffalo, N. Y.—The New Method Folding Box Corporation, recently organized by John P. Hale, 353 LaSalle avenue, and associates, with capital of $50,000, plans operation of local plant for the manufacture of paper boxes and containers. Arthur B. Armagost, 8 Landon street, Buffalo, is interested in the new company.

Kingsport, Tenn.—The Mead Corporation is operating on a five-day week schedule at its local mill, giving employment to close to normal working quota, and expects to hold to present basis for some weeks to come.

Corinth, N. Y.—The International Paper Company, 220 East 42nd street, New York, is reported planning an expansion and improvement program at its mill at Corinth, with installation of additional equipment. Work is to be carried out over a period of months, and will cost close to $100,000, including equipment.

York, Pa.—The York Wallpaper Company has made a number of improvements and alterations in its local mill during curtailment for the past sixty days, and has resumed operations at the plant with working force of about 150 men. The company is said to have secured orders to insure this working quota on a capacity schedule until next year.

New York, N. Y.—The Daller Carton Company, Inc., recently formed by Adrian O. Daller, 342 Madison avenue, and interests identified with the National Biscuit Company, 449 West Fourteenth street, plans operation of local plant for the manufacture of folding paper cartons and other paper boxes. The company is capitalized at 190 shares of stocks, no par value. Peter J. Sunheim and Howard L. Powell, both care of National Biscuit Company, are other organizers of the company.

Marion, N. C.—The Etta Paper Box Company has advanced operations to a full time schedule with full working force, and will continue on that basis for an indefinite period. The plant was established in 1929, and has carried out an expansion program since that time.

Monroe, Mich.—The Consolidated Paper Company is said to have purchased bonds in amount of $75,600 and accounts receivable of $28,000 of the Monroe Paper Products Company, Monroe, from the Guardian National Bank of Commerce, Detroit, Mich., held by latter as collateral on a note of the Monroe Paper Products Company of $45,000.

Lisbon Falls, Me.—The Wood Fibre Board Corporation, Brunswick, Me., has resumed production at its plant at Lisbon Falls, following curtailment of a number of weeks. A sizable working force will be employed for an indefinite period.

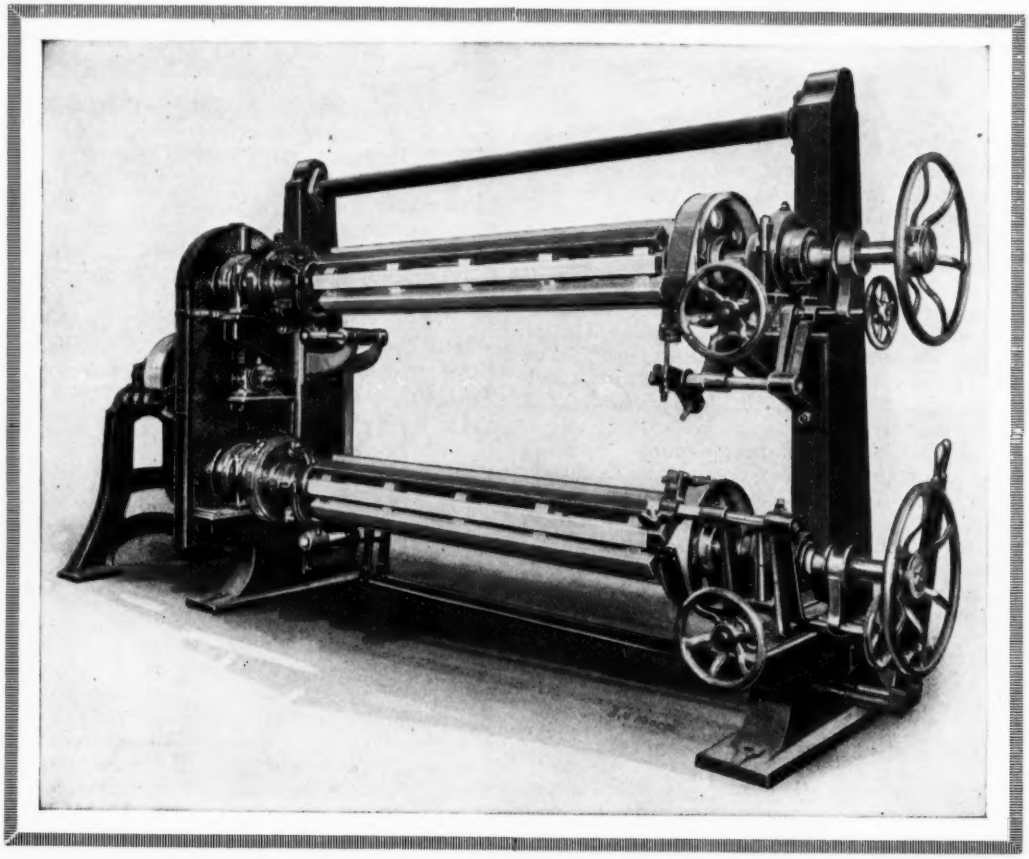
Bogalusa, La.—The New Orleans Corrugated Box Company, manufacturer of corrugated boxes and containers, with headquarters at New Orleans, La., has completed installation of considerable new machinery at plant at Bogalusa for the manufacture of fiber boxes of new type, and will develop maximum capacity at plant at an early date. The expansion program represents an investment of about $75,000, with equipment.

Plattsburg, N. Y.—The Berst-Forster-Dixfield Company, Grand Central Terminal, New York, has begun excavations for proposed new mill additions at Plattsburg, and will proceed with superstructure for two new three-story structures, 152 x 210 feet, and 40 x 300 feet, respectively, previously referred to in these columns, at an early date. The James Leck Company, 211 South Eleventh street, Minneapolis, Minn., general contractor for structures, has awarded a contract to McClintic-Marshall Corporation, Pittsburgh, Pa., for structural steel framing, and award for concrete reinforcing steel has been let to Kalman Steel Corporation, Bethlehem, Pa., an interest of Bethlehem Steel Corporation, Bethlehem. Other awards will be made at an early date. The expansion program, including improvements in present mill, is reported to cost about $200,000, including equipment. H. F. Hallock, Oswego, N. Y., is architect for the company.

New York, N. Y.—The D. & H. Paper Box Company, Inc., recently organized by Louis Davis, 464 Junius street, Brooklyn, N. Y., and Abraham Davis, 1 Avenue C, New York, with capital of $20,000, plans operation of a local plant for the manufacture of paper boxes and containers. Max Kimbarowsky, 853 East 170th street, Bronx, New York, is interested in the company.

Akron, Ohio—The Palmer Match Company, Akron, has asked bids on general contract for proposed new addition to plant for the manufacture of book matches, including paper converting department for production of paper books for match containers. The new unit will be of multi-story type, and is reported to cost over $250,000, with machinery. It is expected to begin work on superstructure at an early date. Hannah & Sterling, Publication Building, Pittsburgh, Pa., are architects. C. G. Allen is superintendent at the mill.

Kingsport, Tenn.—Tennessee-Eastman Corporation is increasing production schedule at its local cellulose acetate mill, and it is expected to have plant on maximum



LATEST TYPE 2-DRUM M & W UPRIGHT REEL

WITH ANTI-FRICTION BEARINGS

PERFECT ALIGNMENT

TO SUIT DRAW OF PAPER—

WITHOUT EXCESS FRICTION

ADVANTAGES

- **INDEPENDENT FRICTION CLUTCH DRIVE WITH LEVER FOR EACH DRUM**
- **OPERATION FROM FRONT SIDE**
- **IMPROVED BELT TENSION ADJUSTMENT**
- **LARGE BRAKE WHEELS WITH ASBESTOS LINING**
- **REEL DRUMS ADJUSTABLE LATERALLY AND LENGTHWISE.**

THE MOORE & WHITE COMPANY

Established 1885

PAPER MACHINE BUILDERS

15TH ST. & LEHIGH AVE. PHILADELPHIA, PA.

capacity basis at early date, with full working force in all departments.

Buffalo, N. Y.—The DuPont Rayon Company is planning early resumption of operations at local cellulose rayon mills on the River road, following curtailment for several weeks. More than 200 employes will be reinstated.

New Companies

New York, N. Y.—The Barnum Envelope Manufacturing Company has been incorporated with capital of $10,000, to manufacture envelopes and other paper products. The incorporators are Louis M. Leibowitz and Samuel A. Hirshowitz, 11 West Forty-second street. Last noted is company representative.

Brooklyn, N. Y.—The Westcott Products Corporation has been incorporated with capital of $20,000, to manufacture and deal in paper goods of various kinds. The incorporators are Theodore Ostrow, 26 Court street; Leo Blum, 100 Northern avenue, New York; and Habeeb Abokair, 1523 Eleventh avenue, Brooklyn. First noted is company representative.

Wilmington, Del.—The Mississippi Pulp Products Corporation, care of United States Corporation Company, 150 Broadway, New York, has been incorporated under Delaware laws, with capital of 2000 shares of stock, no par value, to manufacture pulp and paper products.

New York, N. Y.—Sachs-Davidson, Inc., has been incorporated with nominal capital of $5,000, to manufacture and deal in paper products of various kinds. Joseph Sachs, 1490 Jesup avenue, Bronx, New York, and Louis Davidson, 1755 Sixty-fourth street, Brooklyn, N. Y., are the principal incorporators.

Allied Paper Bag Corp. Starts

BALTIMORE, Md., August 29, 1932.—The Allied Paper Bag Corporation, a new concern, has started a factory here at Monroe and Eighth streets. The company is manufacturing a diversified line of specialty bags for all packaging purposes. The officers of the new company are all men of long and wide experience in the paper bag field.

H. E. Hallman, president, was, until recently resigned, general superintendent in charge of manufacture of the Brooklyn Bag Specialties factory of the Continental Paper and Bag Corporation. Ben Lapides was, until recently resigned, in charge of sales of the bag specialties of the Hoff Paper Company, selling agent for the Continental Paper and Bag Corporation and was previously on the sales force of the Continental Paper and Bag Corporation. B. P. Gately, vice-president and treasurer was, until recently resigned, in charge of sales of bag specialties for the Continental Paper and Bag Corporation, Pittsburgh and Southern Division.

As may be observed, this is an organization well qualified and accustomed to interpret sales ideas and express them in packages and displays. The facilities of the company give sales counsel, artists and idea men backed by mechanical equipment of the most modern type, geared to fulfill the most exacting requirements of present day demands for service.

Swedish Paper Production

WASHINGTON, D. C., August 31, 1932—News print production by Swedish mills during the month of June totaled 14,824 metric tons as against 17,905 tons during the month of May and 17,333 tons during the month of June last year. This brings production during the first six months of the current year up to 118,282 metric tons as against 99,367 tons during the first half of last year.

HAMMERMILL AGENTS MEET

(Continued from page 17)

cago, Ill.; W. N. Gillett, Chicago Paper Company, Chicago, Ill.; John F. Bell, Clements Paper Company, Nashville, Tenn.

M. V. Wiggins, Crescent Paper Company, Indianapolis, Ind.; E. P. Magel, Crescent Paper Company, Indianapolis, Ind.; F. D. Payne, Daka Paper Company, Erie, Pa.; J. H. Bliss, Daka Paper Company, Erie, Pa.; Edward Selden, Daka Paper Company, Erie, Pa.; J. M. Knablein, Daka Paper Company, Erie, Pa.; A. L. Schneider, Diem & Wing Paper Company, Cincinnati, Ohio.

J. M. Sturm, Diem & Wing Paper Company, Cincinnati, Ohio; Geo. J. Kuebel, Durico Paper Company, Erie, Pa.; H. S. Wuenschel, Durico Paper Company, Erie, Pa.; Wm. P. Carney, Durico Paper Company, Erie, Pa.; T. H. Epes, Epes-Fitzgerald Paper Company, Inc., Richmond, Va.; A. C. Thomas, F. A. Flinn, Inc., New York.

Fred Stutzman, Holland Paper Company, Buffalo, N. Y.; W. R. Grazelle, Holland Paper Company, Buffalo, N. Y.; Geo. S. Clerk, Hudson Valley Paper Company, Albany, N. Y.; Albert Wittler, Irwin Paper Company, Quincy, Ill.; H. T. Newell, Jackson Paper Company, Jackson, Miss.; Harry G. Keffer, Johnston, Keffer & Trout, Harrisburg, Pa.; Spencer Lathrop, Lathrop Paper Company, Inc., New York, N. Y.

G. E. Barnes, Lehigh Valley Paper House, Allentown, Pa.; Arnett W. Leslie, John Leslie Paper Co., Minneapolis, Minn.; Walter H. Stuart, Henry Lindenmeyr & Sons, New York; Charles M. Bleke, Mack-Elliott Paper Company, St. Louis, Mo.; Otto A. Brunner, Megargee Brothers, Scranton, Pa.; W. C. Merzwiler, Miller Paper Company, Inc., Louisville, Ky.

Robert S. Johnston, Old Dominion Paper Company, Norfolk, Va.; A. D. Cleveland, E. C. Palmer & Co., Ltd.; Ormond Freile, Paper Merchants, Inc., Philadelphia, Pa.; E. A. Petrequin, Petrequin Paper Co., Cleveland, Ohio; W. A. Rhodes, S. P. Richards Paper Company, Atlanta, Ga.; Ernest C. Mead, Richmond Paper Company, Inc.; Richmond, Va.

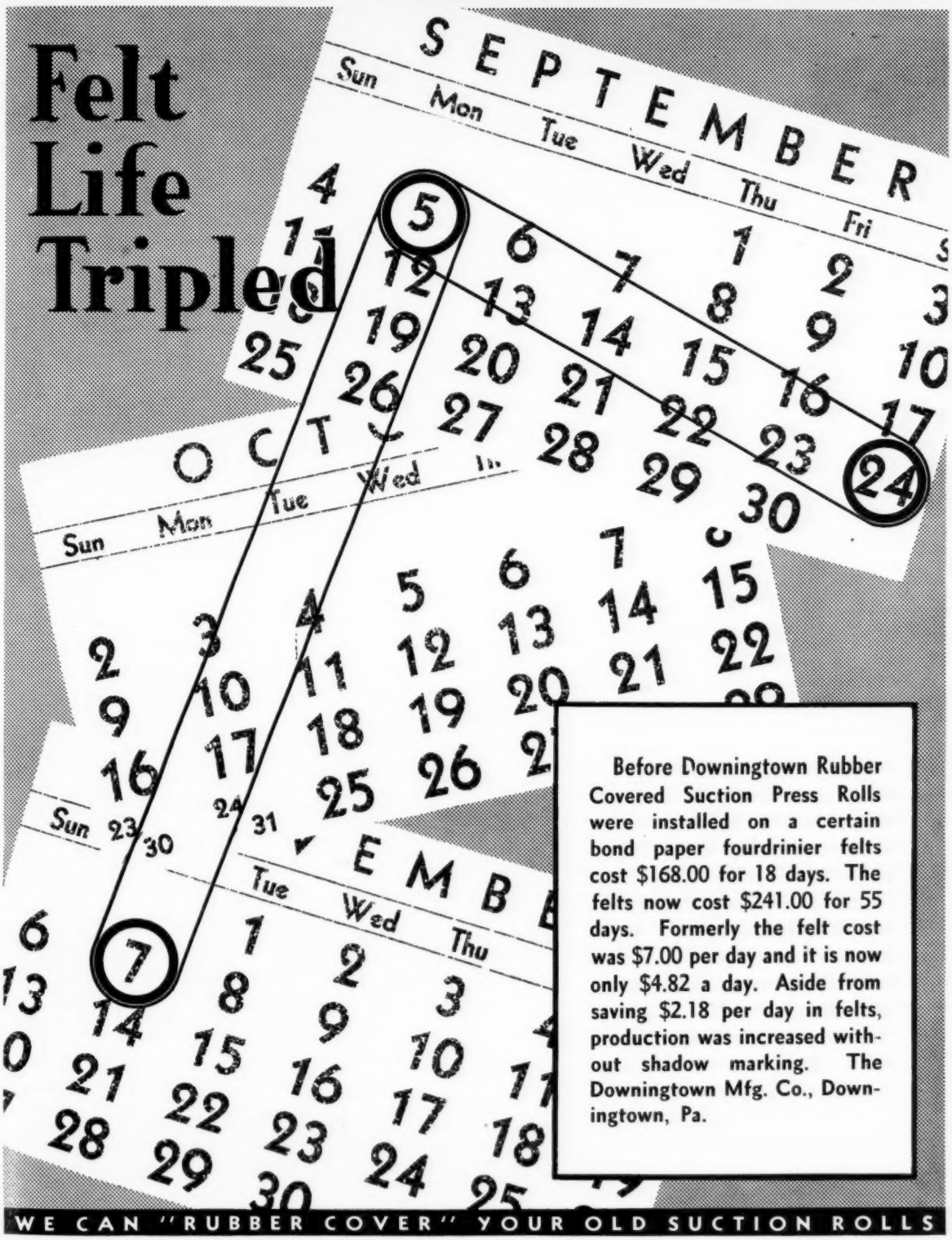
H. Ewing Harris, Southeastern Paper Company, Louisville, Ky.; W. D. Williams, Southeastern Paper Company, Louisville, Ky.; Ross Likins, Springfield Paper Company, Springfield, Mo.; H. L. Hammond, Springfield Paper Company, Springfield, Mo.; Geo. L. Webb, Storrs & Bement Company, New Haven; W. N. Stetson, Jr., Storrs & Bement Company, Boston, Mass.

George Gould, Swigart Paper Company, Chicago, Ill.; John D. Swigart, Swigart Paper Company, Chicago, Ill.; Jake Nacht, Union Card and Paper Company, New York; C. R. Smith, Van Reed Paper Company, Reading, Pa.; Howard W. Vernon, Paul E. Vernon & Co., New York; Allen C. Damon, Paul E. Vernon & Co., New York; Simon Walter, S. Walter, Inc., Philadelphia, Pa.

Valentine L. Wilson, S. Walter, Inc., Philadelphia, Pa.; Geo. W. Ward, D. L. Ward Company, Philadelphia, Pa.; Roscoe Taylor, Western Paper Company, Fort Wayne, Ind.; E. W. Julian, Western Newspaper Union, Omaha, Neb.; Calvin Wilson, R. D. Wilson Sons & Co., Clarksburg, West Va.; H. L. Zellerbach, Zellerbach Paper Company, San Francisco, Calif.; F. L. Fisher, Central States Envelope Company, Div., Indianapolis, Inc.

F. B. Korbel, P. P. Kellogg & Co., Inc., Springfield, Mass.; Chas. T. Ross, National Envelope Company, Division, Waukegan, Ill.; E. V. Johnson, United States Envelope Company, Springfield, Mass.; William H. Johns, Bruce Barton, Chas Babcock, Batten, Barton, Durstine & Osborn, Inc., New York; William H. Howe, Buffalo, N. Y.; Chas. C. Walden, Jr., Walden, Sone & Mott.

DOWNINGTOWN


Felt
Life
Tripled
SEPTEMBER
Sun Mon Tue Wed Thu Fri
OCTOBER
Sun Mon Tue Wed
Before Downingtown Rubber Covered Suction Press Rolls were installed on a certain bond paper fourdrinier felts cost $168.00 for 18 days. The felts now cost $241.00 for 55 days. Formerly the felt cost was $7.00 per day and it is now only $4.82 a day. Aside from saving $2.18 per day in felts, production was increased without shadow marking. The Downingtown Mfg. Co., Downingtown, Pa.
WE CAN "RUBBER COVER" YOUR OLD SUCTION ROLLS

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COMING EVENTS

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, Fall Meeting, Nonotuck Hotel, Holyoke, Mass., September 14, 15 and 16, 1932.

PAPER AND PULP SECTION OF THE NATIONAL SAFETY COUNCIL, Twenty-first Annual Safety Congress and Exposition, Wardman Park and Shoreham Hotel, Washington, D. C., October 3, 4, 5, 6 and 7, 1932.

CONFIDENCE RENEWED

"With the passing of the panic stage of the depression and the substitution of hope in place of fear as an active agent in business men's minds, an important step toward the solution of the problems before us has at least been taken. It is certain that this change in mental attitude is a necessary prelude to any recovery. The cessation of hoarding, the will to buy, and the impulse to build follow in natural sequence is the belief of the Guaranty Trust Company.

With certain qualifications, the statement says that the reversal in business psychology that has taken place in the last few weeks must be regarded as a highly favorable development. The transition from an atmosphere of panicky apprehension to one of moderate optimism is more than a mere reaction from an extreme and untenable position; it is an active economic influence of the greatest importance, particularly at a time when psychological, rather than physical, conditions seem to present the most formidable barriers to recovery. Productive activity in many industries has consistently run below the rate of current requirements, and inventories have been reduced to a low level. Consumers, as well as business men, have practiced severe curtailment, partly from necessity, partly from fear as to what the future might hold in store, and partly in the expectation of lower prices to come. Now, with supplies diminished, prices rising, and optimism supplanting fear, there is ground for the belief that this deferred demand may become an active influence in commodity markets, impetus must come from some other direction. It will probably come from an increase in buying on the part of consumers and dealers whose supplies of goods have shrunk to such a point that buying can no longer be postponed, or who have become convinced that nothing is to be gained by continuing to wait for lower prices. The resulting expansion in production and trade, however slight, is sufficient to increase profits and to give employment to some workers. Thus, purchasing power increases; buying becomes more active, and the groundwork is laid for further gains in employment. While it is true that an expansion in purchasing power must be an integral part of any broad movement toward business recovery, it does not follow that such an expansion must occur before any improvement can be shown.

It is natural that the question should arise to what extent the recent advances in prices are due to the easy-money campaign fostered by the Federal Government. A categorical answer to such a question is clearly impossible, since cause-and-effect relationships are seldom susceptible to definite proof, particularly when psychological factors are involved. The operations of the Reconstruction Finance Corporation have, of course, become an important factor in the situation, and it is undoubtedly true that both the Reconstruction Finance Corporation and the Federal Reserve banks have, by affording aid at strategic points, greatly contributed to the strengthening of the banking situation and thus to the general revival of confidence that has gone hand-in-hand with the upward movement of prices. The actual degree of such "psychological relief" will never be definitely known, but current comment by business men leaves no room for doubt that the various measures taken by the Federal Government to bolster confidence have actually had the intended effect, though perhaps not to the extent that might have been desired.

WOOD PULP SPECIFICATIONS

A feature of the fall meeting of the Technical Association of the Pulp and Paper Industry to be held at Holyoke, Mass., September 14 to 16 will be a symposium on wood pulp classification and specification. So important is this subject that the entire program of one of the sessions will be devoted to it. Preparations for the meeting are being arranged by Dr. John L. Parsons of the Hammermill Paper Company and general chairman of the TAPPI Raw Materials Division.

The conference will cover the following subject:

1. Pulp classification.
2. Pulp use requirements.
3. Present ability to specify based on existing methods of evaluation.
4. Color measurements of pulps.

Members of the Association who have had extensive experience and who are especially fitted in these subjects will lead the discussion.

The Association is at present circulating an inquiry to ascertain the extent to which individual paper companies

are specifying and testing pulp. The items that enter into specification cover the following:

1. Color, as received.
2. Dirt count.
3. Freeness or slowness, as received.
4. Rate of loss of freeness during refining.
5. Screen fractionation (fiber length measurements).
6. Physical properties of test sheets from pulp, as received. a. Tensile, b. tear, c. bursting, d. folding, e. bulk, f. opacity.
7. Physical properties of test sheets from pulp as refined.
8. Bleach requirement.
9. Alpha cellulose.
10. Total cellulose.
11. Viscosity.
12. Alkali solubility.
13. Pitch content.
14. Lignin.
15. Ash.
16. Copper number.

To get breadth of viewpoint representatives of the following groups will be asked to participate in the meeting: 1. West Coast pulp manufacturers, 2. Canadian pulp manufacturers, 3. Pulp users and 4. Pulp importers.

Since the decision to be made by the Technical Association relative to pulp specification will be far reaching in its influence on industrial policy, all who are interested in this subject should plan to be present. Anyone desiring more information regarding the symposium should address Dr. Parsons or the secretary of the Technical Association of the Pulp and Paper Industry, 370 Lexington Avenue, New York, N. Y.

Because of the large attendance anticipated at the TAPPI meeting, room reservations should at once be made at the Nonotuck Hotel, Holyoke, Mass. Certificates should be obtained from the ticket agents when railroad tickets are purchased to benefit by the fare and one-half arrangements that has been made by the local committee.

Bogalusa Paper Plants Busy

BOGALUSA, La., August 27, 1932.—Local indications that there is an upturn in business was reported this week when it became necessary for the plant of the Union Bag and Paper Company to work a night shift to take care of the big increase in orders.

Orders are reported to be coming in and there is every indication that this plant will run night and day for the next few weeks.

Orders are on the increase at the Bogalusa Paper Company, but the prices are reported unsatisfactory. Sufficient orders have been received to run full day and night shifts all this week, and several orders are on hand for next week.

New TAPPI Members

The following elections to membership in the Technical Association of the Pulp and Paper Industry have been announced:

Harold M. Annis, chief chemist of the Allied Paper Mills, Kalamazoo, Mich., is a graduate of Miami University and was for four years on the technical service staff of the Mead Corporation, Chillicothe, Ohio.

William Fogarty, superintendent of the Pittston Paper Company, Pittston, Pa., attended the University of Wis. He was formerly machine tender for the McIntyre Bros. Paper Company, Fayettsville, N. Y., and superintendent of the Northern Paper Mills, Green Bay, Wis.

John C. Harper Jr., assistant general manager of the West Jersey Paper Company, Camden, N. J., is a graduate mechanical engineer of Lafayette College. Mr. Harper was formerly an engineer in the Westinghouse Electric and Manufacturing Company organization.

Merle A. Heath recently graduated as a Ph.D. from the University of Wisconsin. He was formerly chemist for Armour Auxiliaries in Chicago, and for Colgate-Palmolive-Peet Company in Jeffersonville, Ind.

Herbert Philipp, chemical engineer of the Solvay Process Company, Syracuse, N. Y., is a 1901 graduate of the Federal Technical College of Zurich, Switzerland. He was formerly chemist for the Pennsylvania Salt Manufacturing Company, Wyandotte, Michigan and the Roessler & Hasslacher Chemical Company, Perth Amboy, N. J.

Raymond H. Wiles, chief of the Pulp Testing Section of the Research Division of the International Paper Company, Glens Falls, N. Y., is a 1923 graduate chemical engineer of Mount Allison University. He was formerly analyst for the British Empire Steel Corporation, Sydney, N. S., research chemist for the Abitibi Power and Paper Company, Iroquois Falls, Ontario, and chief of the control department of the Three Rivers mill of the Canadian International Paper Company.

H. R. Harrigan Appointed

Frederick C. Clark, general chairman of the TAPPI Operating Division of the Technical Association of the Pulp and Paper Industry has announced the appointment of H. R. Harrigan, manager of the District of Columbia Paper Company, Washington, D. C., to the chairmanship of the newly organized TAPPI Finishing Committee.

The field of the Finishing Committee covers operations after the reeling of paper on the paper machine, such as rewinding, slitting, cutting, sorting, trimming, supercalendering, folding, packing, wrapping, plating, embossing, ruling, shipping, etc.

This committee expects to obtain data on the various types of finishing equipment such as power requirements, production capacities, etc. It is expected that sufficient information will be gathered so that each mill may readily determine the type of equipment best suited for its particular requirements.

The personnel of the committee will be announced later.

Chemipulp Head Sails for Europe

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., August 29, 1932.—T. L. Dunbar, president of the Chemipulp Process Inc., has sailed for an extended sojourn in Europe. He plans to make a study of manufacturing conditions in Scandinavia, Austria and Germany during the course of his trip. He is recognized as an authority on subjects dealing with chemical pulp manufacturing and has a wide acquaintance in the industry abroad. The trip will consume several weeks.

For the Strength that is in Unity

A service which is *specific* and *technical*, yet covers widely varied industries, was made possible by the recent consolidation of the activities of eleven chemical companies into the American Cyanamid & Chemical Corporation. In this new "unity" there is special strength . . . the strength of a thorough, and interchangeable, understanding of specific problems in such diversified lines as paper—fumigating—rubber—leather—metal—paint and varnish—textiles.

Here is an organization which gives stability because it is a single unit . . . *personalized* service because the "members" who have made up the unit know their fields!

Some of the many industries served are:

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Building
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Chemical
Dyestuff
Explosive
Fertilizer
Food
Glass
Ink
Insecticide
Leather
Linoleum
Metal
Mining
Oils & Greases
Paint and Varnish
Paper & Pulp
Petroleum
Pharmaceutical
Rubber
Soap
Textile

AMERICAN CYANAMID & CHEMICAL CORPORATION

535 Fifth Avenue, New York

Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Chromium-Nickel-Iron Castings for Sulphite Pulping Equipment*

Preliminary Report and Tentative Specification of the Technical Association of the Pulp and Paper Industry

During the past few years a considerable tonnage of chromium-nickel-iron castings of the type known generally as "18-8" have been used by the paper industry, especially for handling corrosive sulphite liquors. The superiority of this type of alloy for sulphite service has already been well established by numerous tests and practical experience and need not be discussed further here. There has been some confusion on the part of both users and producers as to the proper composition and heat treatment for this service. This has hindered both producer and user, the one in extending the markets for his products and the other in enjoying the advantages and economies which attend their use.

At the last annual meeting of the Technical Association of the Pulp and Paper Industry, February, 1932, it was suggested[1] that the Materials of Construction Committee develop a specification for chromium-nickel-iron castings of the 18-8 type which could be used as a guide to the industry in the purchase of these materials. This suggestion met with sufficient approval to encourage the committee to undertake the assembly of data upon which such a specification might be based.

The following sources of information were explored:

1. The literature on the alloys in question.
2. A metallurgical examination of castings that failed in service.
3. The experience of producers.

It is not proposed at this time to give a complete review of this exploratory work which included an investigation of the welding situation as well as of castings. This will be undertaken in a report to be presented at the next annual meeting. It will suffice for the present to give a summary of the important conclusions already reached only insofar as they refer to the casting situation. This summary is being presented to invite and to enable criticism and discussion of the findings to date and of the proposed specifications. Such discussion will be taken into account in drafting the formal and more complete report to be presented later.

Review of the Literature

A study of several important papers[2] on these alloys yielded the following information:

1. A certain minimum amount of chromium and nickel are essential to insure adequate resistance to corrosion.
2. Only the chromium and nickel in solid solution with the iron are effective in contributing corrosion resistance. Combined with carbon in the form of precipitated carbides, they do not contribute to corrosion resistance.
3. The solubility of carbon in these chromium-nickel-iron alloys decreases as the temperature falls from the solidus and has been reported to be not more than 0.04 per cent at 1100 deg. F. Below 1100 deg. F. the solubility is not accurately known. In the range from about 1100 to 1600 deg. F. excess carbon, in the form of carbides, is precipitated from solution, usually at the grain boundaries. In severely stressed metal, carbides may be precipitated along slip planes within the grains as well. Above 1900 deg. F. precipitated carbides are redissolved in consequence of the higher solubility of carbon at the higher temperatures.
4. The chromium content of precipitated carbides is said to be about 90 per cent. Stated another way, the precipitation of each 1 per cent carbon is said to take out of solid solution 15 to 19 per cent chromium.
5. The rate of diffusion of chromium in the temperature range of carbide precipitation is considerably less than that of carbon. This means that the chromium contained in precipitated carbides is taken from a considerably smaller volume of metal than that from which the carbon is precipitated.
6. As a result of 3, 4 and 5, the precipitation of carbon is accompanied by local chromium impoverishment of the metal immediately adjacent to the precipitated carbides. This in turn results in sufficient impairment of corrosion

* To be presented at the fall meeting of the Technical Association of the Pulp and Paper Industry, Holyoke, Mass., Sept. 14-16, 1932.
This specification has been approved by the Materials of Construction Committee of the Technical Association of the Pulp and Paper Industry. Criticism and suggestions should be sent to the chairman, J. D. Miller, York Haven Paper Company, York Haven, Pa.

[1] B. F. Shepherd in discussion of paper, "Alloy Steel in the Sulphite Industry." Technical Association Papers, Volume XV, No. 1, page 43.

[2] No attempt will be made in this summary to credit individual sources of information. A more complete discussion of the literature with a selected bibliography will be included in the formal report to be presented at the next annual meeting.

resistance to bring about severe attack (usually intercrystalline) of the impoverished areas by solutions to which the alloy may subsequently be exposed. While this explanation of intercrystalline corrosion of these alloys is not universally accepted, it provides a working hypothesis which has enabled the development of suitable and positive means of avoiding such difficulties and, therefore, for the present at least, it appears to be a most useful one.

7. It should be evident from 3, 4 and 5 that carbide precipitation can be eliminated, or provided for, by

(a) Avoiding holding the metal for any appreciable period within the range from 1000 to 1600 deg. F. This is, of course, practically impossible in connection with castings cooling slowly in molds and with welding operations.

(b) In cases where it is impractical to avoid conditions which may result in the precipitation of carbides the normal corrosion resistance of the material can readily be restored by redissolving the carbides. This is accomplished by reheating to a temperature above 1900 deg. F. followed by sufficiently rapid cooling (quenching in water) through the critical range to avoid reprecipitation of carbon.

(c) By lowering the carbon content of the alloy sufficiently (below 0.07 per cent) the extent of carbide precipitation in the critical range of temperature may be reduced to a point where it will not result in serious corrosion in many environments. In such cases subsequent heat treatment can often be eliminated. However, as the carbon content is lowered the fluidity of the molten alloy decreases and consequently casting difficulties increase. Therefore, the adoption of this device is not universally practicable.

(d) By raising the chromium and nickel contents above the nominal 18-8 proportions sufficient reserve against depletion may be provided to allow the precipitation of carbides to occur without the necessity of subsequent heat treatment.

(e) The necessity of heat treatment may also be eliminated by the addition of special alloying elements which either unite readily with carbon and thus reduce the chromium content of the carbides, stabilize the carbon in solution, slow down its rate of diffusion, or bring about a more or less controlled and harmless precipitation of carbides away from the grain boundaries. These special addition elements include silicon, molybdenum, tungsten, titanium and vanadium. The committee has not been able, as yet, to investigate the efficacy of these special addition elements as applied to castings. Therefore, they will not be given further consideration at this time.

Metallurgical Examination of Castings that Failed in Service

Through the kind cooperation of several paper mills the committee secured some castings which had failed in service. These castings were shipped to the research laboratory of the International Nickel Co. Inc., Bayonne, New Jersey, whose facilities were placed at the disposal of the committee for a metallographic study of the failures. Likewise samples taken from these castings were sent to the Central Alloy Steel Division of the Republic Steel Corporation, Massillon, Ohio, for chemical analysis. The committee is deeply grateful to these firms for their kind cooperation.

The results of the chemical analysis are not yet available. The metallographic work has been completed and will be described in detail in the formal report. It will suffice to say that without a single exception the failures were found to be due to intercrystalline corrosion and in each case photomicrographs of sections taken from protected portions of the castings showed unmistakable evidence of carbide precipitation. (See item 6 under review of literature.) Furthermore, it was clearly demonstrated that the crystals themselves, (corresponding to the normal structure of the metal in the absence of carbides), were practically immune to corrosion by the solutions to which the castings had been exposed.

It seems entirely reasonable to assume, therefore, that if the precipitation of carbides in castings be properly provided for, either by control of composition or heat treatment (see item 7 under Review of Literature) even the relatively small number of failures which have occurred in the past can be eliminated in the future.

The Experience of Producers

The experience of producers of alloys was canvassed by means of a questionnaire which was sent to 23 producers and which yielded 21 replies. The excellent response to this questionnaire has been the source of much gratification to the committee, not only because of the great value of the information obtained, but because of the spirit of cooperation exhibited.

QUESTION 1—Please estimate the total weight of castings furnished and known definitely to have been used for sulphite service.

ANSWER—Of the 21 producers who replied, 8 were producers of only wrought materials, 5 were unable to estimate tonnage due to lack of definite knowledge of ultimate consumer, while the remaining 8 estimated a total production of 959,000 pounds of castings for sulphite service.

The large amount of these alloys in service in comparison with the relatively few failures that have occurred gives added assurance of the suitability of the alloys.

QUESTION 2—Please give chemical analysis of most satisfactory material produced, analysis should include figures on chromium, nickel, carbon and iron contents plus other elements such as molybdenum present in appreciable proportions or added for specific purposes.

ANSWER—The answers to this question can be divided into two main groups:

1. Chromium-nickel-iron alloys covering the range 18-20 per cent chromium.
2. Chromium-nickel-iron alloys covering the range 20-30 per cent chromium.

Therefore, in summarizing the replies, the average minimum and maximum percentages and the ranges of each element will be tabulated for each group separately.

ANALYSIS GROUP 1—7 REPLIES

Element	Minimum Average	Minimum Range	Maximum Average	Maximum Range
Chromium	18 %	15 to 22 %	21 %	18 to 25 %
Nickel	8 %	7 to 10 %	10 %	9 to 13 %
Carbon	0.16%	0.12 to 0.20%	0.18%	0.12 to 0.25%
Silicon	0.5 %	0.5 to 0.75%	0.75%	0.5 to 1 %
Molybdenum	3.4 %	0 to 4 %	3.6 %	0 to 5 %

ANALYSIS GROUP 2—2 REPLIES

Element	Minimum Average	Minimum Range	Maximum Average	Maximum Range
Chromium	26 %	.....	28 %	26 to 30 %
Nickel	8 %	.....	10 %	.....
Carbon	0.15%	.....	0.28%	0.25 to 0.30%
Iron	Balance			

QUESTION 3—Do you make a practice of heat treating your castings and if so, indicate the heat treatment used?

ANSWER—The answers to this question can be divided into two groups as with question 2.

1. Producers of alloy castings covered by group 1 above were unanimously of the opinion that they should be heat treated by quenching in water from a temperature ranging from 1950 to 2150 deg. F., the average being 2040 deg. F.

2. Alloys of the type represented by group 2 under question 2, above, do not require heat treatment.

QUESTION 4—Suggest a specification for castings which

in your opinion will assure satisfactory performance in service, and which, at the same time, will be acceptable to the foundryman.

ANSWER—The answers to this question can be divided into two groups as with question 2. They will be summarized as before.

ANALYSIS GROUP 1—6 REPLIES

Element	Minimum Average	Minimum Range	Maximum Average	Maximum Range
Chromium	18 %	15 to 20 %	20 %	18 to 22 %
Nickel	8 %	7 to 10 %	10 %	8 to 11 %
Carbon	0.10%	0.07 to 0.15%	0.18%	0.07 to 0.25%
Silicon	0.5 %	.....	1 %	0.5 to 1.75%
Molybdenum	3.3 %	0 to 3.5 %	3.7 %	0 to 5 %
Iron	Balance			

Heat Treatment: Heat to 1950°-2150°F. and quench in water before machining.

ANALYSIS GROUP 2—2 REPLIES

Element	Minimum	Maximum
Chromium	26 %	30 %
Nickel	8 %	10 %
Carbon	0.15%	0.30%
Silicon	.....	0.5 %
Molybdenum	.....	.....
Iron	Balance	

Heat Treatment: Unecessary.

Guided by the data presented above, the committee has drafted the following proposed, tentative specifications for chromium-nickel-iron castings for sulphite pulp processing equipment.

It will be noted that provisions have been made for two distinct ranges of chemical composition. Each should prove equally satisfactory in service.

TENTATIVE SPECIFICATIONS FOR CHROMIUM-NICKEL-IRON CASTINGS FOR SULPHITE PULP PROCESSING EQUIPMENT

1. Scope

These specifications cover chromium-nickel-iron castings used for sulphite pulp processing such as relief valves, strainers, pumps, digestor fittings, etc.

2. Basis of Purchase

All chromium-nickel-iron castings shall be heat treated (where required) in accordance with the recommendations given herein.

3. Process

No specification is required. See supplementary note a.

4. Removal of Risers

The method of removing risers is left to the discretion of the producer, except that if heat be used for such removal it shall precede the recommended heat treatment.

5. Chemical Composition

The material shall conform to either of the following requirements as to chemical composition:

Element	Type A Min.	Type A Max.	Type B Min.	Type B Max.
Chromium	17.5%	25 %	26 %	30 %
Nickel	8.5%	12 %	8 %	12 %
Carbon	.....	0.20%	.....	0.30%
Silicon	0.5%	1.5 %	0.5%	1.5 %
Manganese	0.4%	0.8 %	0.4%	0.8 %
Phosphorus	.....	0.04%	.....	0.04%
Sulphur	.....	0.05%	.....	0.05%
Iron	Balance			

Molybdenum may be specified up to 4 per cent at the option of the purchaser. See supplementary note b.

6. Heat Treatment

(a) Castings whose composition falls within the range of chemical composition "A," section 5, shall be heat treated before machining by quenching in water from a temperature within the range 1950 to 2150 deg. F.

(b) Castings shall be held at temperature for at least two hours per inch of maximum thickness.

(c) Castings whose composition falls within the range of chemical composition "B," section 5, do not require heat treatment.

7. Analyses

An analysis of each melt shall be made by the manufacturer to determine the percentages of elements specified in section 5. Samples for analysis may be taken either by sawing, drilling, or milling either a representative casting or a test ingot obtained during the pouring of the melt. The castings and cutter shall be thoroughly cleaned and no lubricant shall be used during the operation. The chemical composition thus determined shall be reported to the purchaser, or his representative, when requested and shall conform to either of the requirements specified in section 5.

8. Physical or Mechanical Tests

No physical or mechanical tests are required. Such tests may be specified by agreement between producers and purchaser. See supplementary note c.

9. Pickling

Castings shall be either sand blasted or pickled, or both, following heat treatment.

10. Workmanship

The castings shall substantially conform to the sizes and shapes shown on the purchaser's drawings, and shall be made in a workmanlike manner.

11. Finish

(a) The castings shall be free from injurious defects.

(b) Minor defects which do not impair the strength of the castings may, with the approval of the inspector, be welded by an approved process using as filler rod material conforming to the following chemical composition:

Chromium	18 to 20%
Nickel	8 to 10%
Carbon	0.07% Max.
Silicon	0.75% Max.
Manganese	0.60% Max.
Phosphorus	0.03% Max.
Sulphur	0.03% Max.
Molybdenum	Up to 4% as desired
Iron	Balance

Defects shall first be cleaned out to solid metal. The heat treatment, section 6, must be applied to alloys of both type A and type B, section 5, following such welding.

12. Marking

The manufacturer shall mark each casting with his name or identification mark and the heat number from which the casting was poured. In the case of small castings, this requirement may be waived by agreement between producer and purchaser.

13. Rejection

The purchaser reserves the right to reject all material which, subsequent to inspection, does not comply with this specification. Freight charges both ways covering such rejected material shall be borne by the manufacturer.

Supplementary Notes

(a) The melting of these alloys in either the arc or induction type of electric furnace is practically standard and need not be provided for in the specification. At the same time the door should not be closed to other suitable types of melting equipment.

(b) As noted in the summary of replies to the committee's questionnaire, a number of producers recommended the addition of from 3 to 4 per cent molybdenum to alloys of type "A" section 5. While there is plenty of experimental evidence demonstrating the power of molybdenum to contribute extra resistance to corrosion by sulphurous acid and calcium bisulphite, the committee does not consider that the presence of molybdenum is essential. However, the presence of molybdenum up to 4 per cent in the castings which otherwise meet either of the requirements of section 5 as to composition will not be considered as cause for rejection but rather may well be considered as a distinct advantage.

(c) Sound castings produced within the ranges of composition specified in section 5 will possess adequate physical and mechanical properties, especially since these alloys are being used by the sulphite industry, to replace weaker materials. It may eventually be thought desirable to in-

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clude various physical or mechanical tests, such as hydrostatic pressure tests, on finished castings. Suggestions for, and discussion of, such tests are invited.

(d) At the present time the committee is unable to recommend a method of determining whether castings have been heat treated as specified. Discussion is invited on this point. There are at least three possible methods:

a. Physical tests.
b. Chemical tests (Such as the copper sulphate-sulphuric acid test)
c. Metallographic examination.

The committee favors method "c."

(e) It will, of course, be realized that the successful production of alloy steel castings requires considerable skill and experience in molding, melting and pouring which cannot be covered by specifications. These essentials are provided by reliable foundries whose products are identified by trade marks, brands or trade names. Many of these trade marked alloys will fulfill the requirements of this specification.

Acknowledgment

The steel producers who have cooperated in this work are:

The Babcock & Wilcox Tube Company, Beaver Falls, Pa.
The Cleveland Alloy Products Company, Cleveland, Ohio.
The Cooper Alloy Foundry Company, Elizabeth, N. J.
Crucible Steel Company of America, New York City, N. Y.
Duriron Company, Dayton, Ohio.
Globe Stainless Tube Company, Milwaukee, Wis.
Lebanon Steel Foundry, Lebanon, Pa.
Michigan Steel Casting Company, Detroit, Mich.
The Midvale Company, Nicetown, Philadelphia, Pa.
Shawinigan Chemicals Ltd., Montreal, Canada.
Welland Electric Steel Foundry, Welland, Ont.
Allegheny Steel Company, Brackenridge, Pa.
Ludlum Steel Company, Watervliet, N. Y.
National Tube Company, Ellwood City, Pa.
Republic Steel Company, Massillon, Ohio.
Canada Foundries and Forgings, Ltd., Welland, Ont.
Empire Steel Castings, Inc., Reading, Pa.
Bethlehem Steel Company, Bethlehem, Pa.

The Assembly and Calibration of the Glass Electrode*

For Use in the Determination of pH of Solutions During Bleaching

By E. H. Voigtman[1] and B. W. Rowland[2]

Summary

The glass electrode assembly, of use in the determination of pH of oxidizing solutions, has been described, and an illustration of its application cited. This material is presented not as illustrating original work done by the authors, but in recognition of the increasing importance of the glass electrode in a scientific study of bleaching.

The determination of the pH of solutions of oxidizing agents may be accurately accomplished by using the glass electrode. In the paper industry the most important use is the estimation of pH of bleach solutions where colorimetric methods fail because of both chlorination and oxidation of the indicator. The following description is presented for those who have problems related to the determination of this value in connection with a study of cellulose degradation during bleaching.

It is felt that, because of the potential usefulness of the glass electrode in pulp and paper technology, a general summary of the subject and an illustration of the use of the instrument as a means of following the progress of pulp bleaching should be made generally available to the paper mill laboratories.

Historical

In 1909 a glass electrode was proposed by Haber and Klemensiewicz[3]. They used a thin glass bulb filled with a buffer into which a platinum wire dipped. In the years which followed little advancement was made in the use and application of this electrode. Interest was revived in 1929 when MacInnes and Dole[4] did some very interesting work with this type of electrode.

Theory

No theory which has been generally accepted has been advanced concerning the function of the glass electrode. Hughes[5] suggests that the glass membrane acts as a sodium acid silicate buffer which keeps the hydrogen ion concentration within the glass phase constant. This buffer action becomes less effective above a pH of 10, the same at which MacInnes and Dole found variations from the hydrogen electrode. Hughes ascribes the difference in action of various hydroxides as probably being due to greater power of penetrating the glass. Thus potassium hydroxide has less penetrating power than sodium hydroxide owing to the larger potassium ion, and it might be expected that tetramethyl-ammonium hydroxide would be still less penetrating. This leads to the view that the buffer used in calibrating a glass electrode should be, as far as possible, similar to the solution in which the pH is to be determined. The variations, however, are not great and for ordinary mill work a calibration against any standard buffer will be sufficiently accurate.

Horovitz[6] advanced a theory of ion adsorption on the glass surface. In acid solutions, the hydrogen ions being adsorbed, the glass electrode is given a certain solution tension of hydrogen ions, permitting the glass electrode to function as a hydrogen electrode. Cremer[7] assumed the glass membranes as being permeable only to hydrogen ions. Such a theory is classified as a semipermeable or diffusion potential theory. Gross and Halpern[8] suggested that at equilibrium, solutions of water in glass and glass in water existed. The addition of an electrolyte resulted in its distribution between the two phases until equilibrium was reached.

Recently Dole[9] advanced a very interesting differential thermodynamic equation for the glass electrode in terms of activities and transference numbers. His equation and theoretical considerations are consistent up to a pH of 12. His picture of the glass electrode is as follows. "At the glass-water interface an electrical double layer exists which allows in alkaline solutions only positive ions to penetrate the boundary. The boundary is probably sharp so that there is a sudden change in concentration and mobility of the ions in going from the glass phase to the aqueous phase. Complete equilibrium is never set up due to the high viscosity of the glass and ionic exchange will occur only minutely and will be unnecessary for the establishment of the potential. The measured potentials may be considered as somewhat analogous to liquid junc-

* To be presented by title at the fall meeting of the Technical Association of the Pulp and Paper Industry, Holyoke, Mass., September 14-16, 1932.
Contribution from the Institute of Paper Chemistry, Appleton, Wis.
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[2] Professor of colloid chemistry, Institute of Paper Chemistry.

tion potentials, their comparatively high values being due to the selective mobility of the positive ions across the boundary."

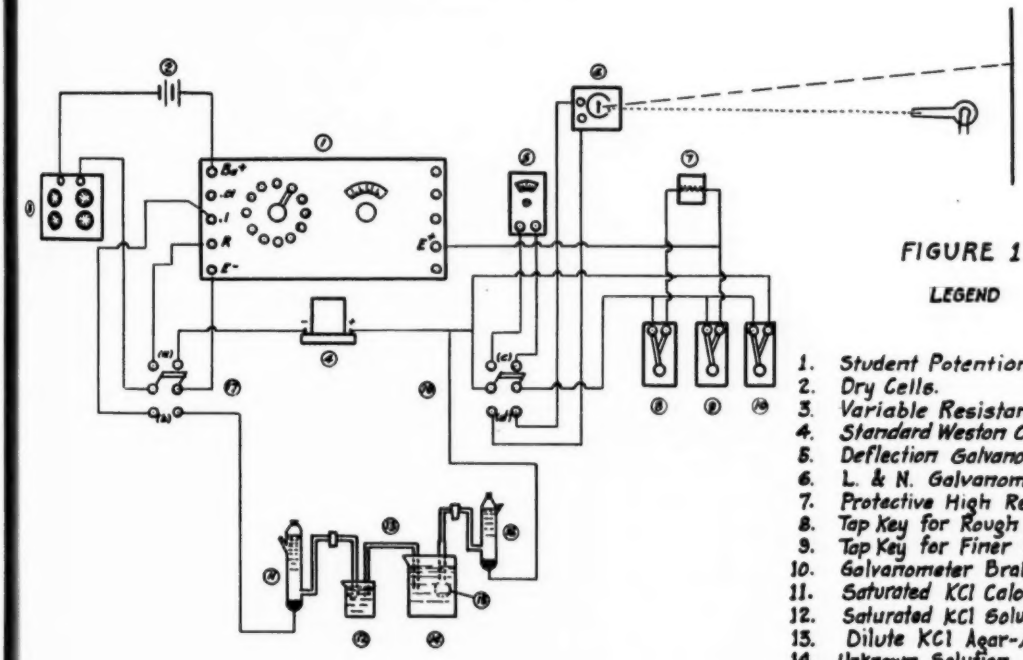
The Glass Electrode Assembly

Corning soft soda glass No. .015 (10 mm. diameter), as suggested by MacInnes and Dole[10] was used for blowing the glass bulb. The electrode should be as thin as possible, yet having sufficient strength to support the volume of liquid within it and the stem leading from it. In general, the thinner the bulb, the more sensitive will the electrode be. The most successful bulbs had diameters from 1.0 to 2.0 inches, were free from entrained air bubbles, and had stems about three to four inches long. Much trouble was experienced in forming bulbs which were free of air bubbles, but it was noted that heating in the upper part of the oxidizing flame greatly facilitated blowing clear bulbs. It is highly desirable to anneal the bulbs, but it is not necessary for ordinary work. Annealing relieves the strains set up in cooling the glass. These strains result in irregularities in the flow of one electrode as compared with another. Following the blowing and annealing, should such treatment be desired, the bulb should be cleaned with a chromic acid solution, washed well with distilled water, filled up with a N-HCl solution, the bulb immersed in dilute hydrochloric acid and allowed to soak for several days prior to being calibrated. When the electrode is not in use, it should be preserved in the above manner. The electrode is washed with distilled water before using. It may be of interest to point out that the shape of the bulb in no way affects the efficiency of the electrode.

The electrical circuit in which the glass electrode is employed is identical with that of the hydrogen electrode assembly except that a much more sensitive galvanometer is required. Of the various types experimented with, the Leeds and Northrup Type R was the most successful. Such a galvanometer has a sensitivity of 0.0001 microamperes, and pH values within 0.1 can easily be determined. The electrical circuit is shown in Fig. 1.

In the early experiments, platinum wires were used for contact with the solution in the glass bulb. More recently a calomel cell has been employed. An assembly in which a N-HCl-calomel cell is incorporated, is described on the following pages. An exactly N-HCl solution is also used in the bulb. In a permanent assembly the calomel electrode may be sealed into the stem of the glass bulb by the use of wax; sealing inhibits evaporation.

The glass bulb is permitted to dip into the unknown solution. The depth to which it is submerged does not appear to alter the calibration, although the bulb at least should be completely covered by the unknown solution. An agar-dil-KCl bridge connects the unknown solution with a beaker containing saturated KCl solution which in turn makes contact with a saturated KCl calomel cell. The use of a dilute agar bridge is to be desired, for a more concentrated bridge results in a contamination of the unknown by diffusion of KCl from the bridge. Variations in concentration of KCl in the bridge do not materially affect the potential across the electrode assembly. For accurate work definite concentrations are recommended in order that results can be duplicated exactly. The ends of the agar bridge should be kept



THE ELECTRICAL CIRCUIT FOR THE GLASS ELECTRODE SET-UP

FIGURE 1

LEGEND

1. Student Potentiometer.
2. Dry Cells.
3. Variable Resistance.
4. Standard Weston Cell.
5. Deflection Galvanometer.
6. L. & N. Galvanometer, Type B
7. Protective High Resistance.
8. Tap Key for Rough balance.
9. Tap Key for Finer balance.
10. Galvanometer Brake.
11. Saturated KCl Calomel Cell.
12. Saturated KCl Solution.
13. Dilute KCl Agar-Agar Bridge.
14. Unknown Solution.
15. Glass Electrode Filled with N. HCl.
16. Normal HCl Calomel Cell.
17. Double-Pole Double-Throw Switch.
    a. Standard Cell Circuit.
    b. Glass Electrode Circuit.
18. Double-Pole Double-Throw Switch.
    c. Coarse Galvanometer.
    d. Sensitive Galvanometer.

submerged at all times to prevent contraction of the gel. Such a bridge, properly made, will be serviceable for weeks.

Where a higher degree of accuracy is required, each electrode should be calibrated each time before using. However, for ordinary work, frequent checks are sufficient. The calibration is made with buffer solutions of known pH. The curve, total E.M.F. plotted against pH proves to be a straight line up to a pH of about 10. Therefore, in calibrating, and also in checking, four or five points are sufficient. The following table presents a sample of the calibration data:

TABLE I

pH	Potentiometer Readings in Millivolts	Millivolt Increments DE
2.0	89	..
3.0	145	56
4.0	205	60
5.0	262	57
6.0	322	60
7.0	377	55
8.0	432	55
9.0	490	58
10.0	549	59
11.0	594	45

Fig. 2 is the calibration curve plotted from the above data. The mathematical equation can easily be calculated since it is a linear function, represented by the general equation:

$$y = mx + b \quad \text{or,}$$
$$pH = (\text{slope})\ (\text{E.M.F.}) + \text{constant.}$$

Substituting:

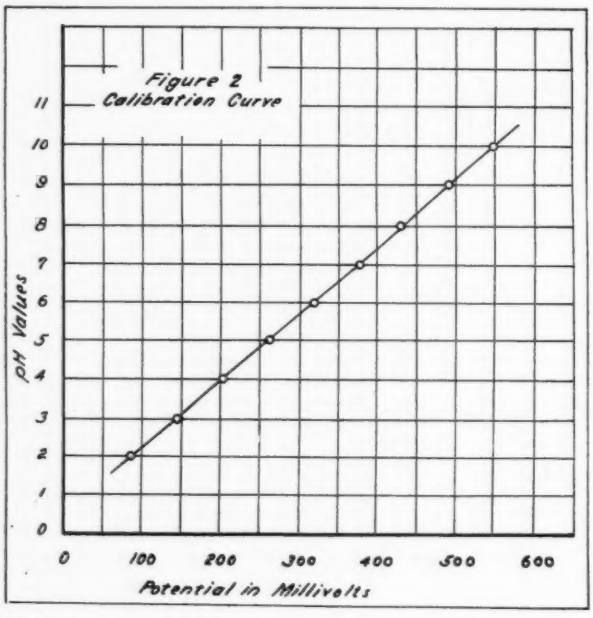
$$pH = (0.0176)\ (\text{E.M.F.}) + 0.40$$

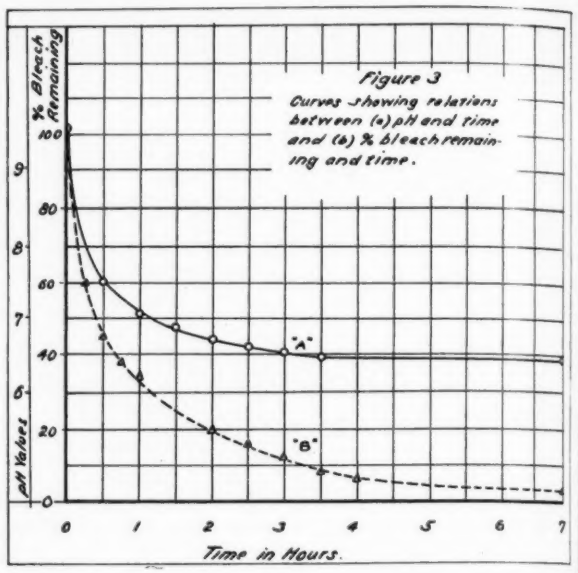
The above data and equation are not to be considered as a standard, although any other calibration should approximate it closely.

After the buffer solution has been used, it is advisable to wash off the glass electrode by immersing it in distilled water. The buffer solution may be preserved for future use.

Application

The glass electrode offers one of the few, if not the only, methods of determining the hydrogen ion concentration of an oxidizing solution. Colorimetric methods, employing dyes, obviously fail to register under oxidizing conditions. The hydrogen electrode, the quinhydrone and metallic electrodes also fail under the above conditions. The glass electrode offers an excellent means of following the changes in pH during a bleaching process. Where definite pH ranges are recommended for most efficient and least degrading conditions, the glass electrode offers the only method of determining whether or not these conditions are actually existing in the bleacher.





The following information is offered as an example of the applicability of this electrode for work of this nature. The following data pertains to a single stage bleach, using a Mitscherlich sulphite pulp having a bleachability of 19.5 per cent based on bleach powder basis. The bleach was carried out on a laboratory basis at 15.0 per cent. The samples of liquor tested were obtained by draining a portion of the stock on a Büchner funnel. The bleach consumption was also followed. The following table gives the results which are shown graphically in Fig. 3:

TABLE II

Time in Hours	pH Value	Per Cent Bleach Remaining
0	9.6	100.0
¼	...	60.0
½	7.50	45.6
¾	...	38.3
1	7.15	34.1
1½	6.85	...
2	6.70	20.5
2½	6.60	16.3
3	6.55	11.8
3½	6.47	8.8
4	...	6.5
7	6.47	1.9

Ross, Mitchell and Yorsten[11] have used the glass electrode for determining the changes in cuprammonium viscosity due to bleaching at varying pH values. They have taken advantage of the vacuum tube potential in place of the extremely sensitive galvanometer which was used by the authors.

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Temperature Curves and the Sulphite Cook*

By Ragnar Monnberg[1]

A few years ago a series of papers regarding the Chemistry of the Sulphite Process was published by Miller and co-workers[2] under the auspices of the U. S. Forest Products Laboratory, Madison, Wisconsin. The papers presented the results of painstaking research work and contained data of great practical value to the Industry.

It is only too natural that these publications should have a great influence on the men in the practical field. In some instances it appears that considerable misunderstanding has resulted from a careless interpretation of the data. A circumstance, which has contributed to such a state, is to be found in the regrettable fact that entirely too bold generalizations were made in form of practical recommendations, at a time, when the authors must have had rather limited experience in the Industry[3].

In a paper Miller[4] gives advice regarding the necessity for a penetration time of 1½ hours before 110 deg. C. is passed and slightly later Swanson [5] lengthens this time to 2 hours and gives sound advice regarding the necessity of lengthening this time still further in special cases.

It is hardly necessary to emphasize that the limit for the penetration time cannot be specified in a general manner. The time of 1½ hours applies apparently only to ⅝ inch chips of the kind produced in the Madison Laboratory by means of an experimental chipper. The necessary penetration time is not only dependent on technical features such as: moisture content of chips, distribution of moisture in the wood, local conditions influencing the nature of the chips especially the sizes, conditions of the acid plant, etc. Economical conditions are also of extreme importance.

Economical variables are the determining factors that fix the length of the cooking time. In a capitalistic society the state of business in general tends to speed up operation and slow it down regardless of the influence of important technical factors.[6] In any type of society, conditions will depend on the relative usefulness and scarcity of materials and products and we can therefore state that an optimum operating method must be a variable always carefully adjusted to existing economical conditions.

A cooking time, which is thought to be the most economical one under a given set of conditions might become distinctly uneconomical under another set of business conditions. For instance, there was a time when screenings could be disposed of easily.

The above sentences represent mere platitudes to men engaged in the Industry. However, it is astonishing to see how little attention is paid to such obvious facts by research workers in general. Chemists often endeavour to develop an optimum method for operation disregarding all economical factors. The following illustration is deemed proper in this connection in view of the amount of work that often is carried out in the wrong direction.

A sulphite mill produces bleached pulp. When a certain type of easy bleaching pulp is made, the ultimate yield of bleached pulp is somewhat lower than when a hard stock is produced. Disregarding entirely the influence of the quality of the pulp we can easily find a condition under which the cost for wood, steam and sulphur is so low that it pays to make an easy bleaching pulp due to the high cost of chlorine. The value of the loss in yield is smaller than the value of the chlorine saved. Let wood or sulphur become more expensive and the saving in chlorine might not any longer offset the loss in yield. Let the relative price for chlorine drop drastically and it might become advantageous to cook and bleach a very hard stock.

In spite of the deliberations given above I have to begin with an assumption of a definite set of conditions. I will take the work of Miller[7] as the starting point.

Temporarily we take for granted that the penetration time (equal to the preheating period spent in order to reach 110 deg. C.) and the cooking time are given. Under the influence of American industrial practice Miller made a study of a very short cooking time. From the results of chemical work he concluded that a temperature over 148 deg. C. should not be allowed. The temperature for the cooking time which he had chosen tends to become very high. It therefore appeared logical to take the highest temperature that only could be allowed and consequently the temperature at blow was limited to 148 deg. C.

In this manner the problem is limited to an extent indicated in Fig. 1. Time to 110 deg. C., total cooking time and temperature at blow are all given. The variable that is to be studied is represented by the manner in which the temperature is raised between 110 deg. C. and 148 deg. C. The main alternatives are such as illustrated in Fig. 2.

From the results of several cooks Miller concluded that the alternative represented by the straight line in the middle was to be preferred.

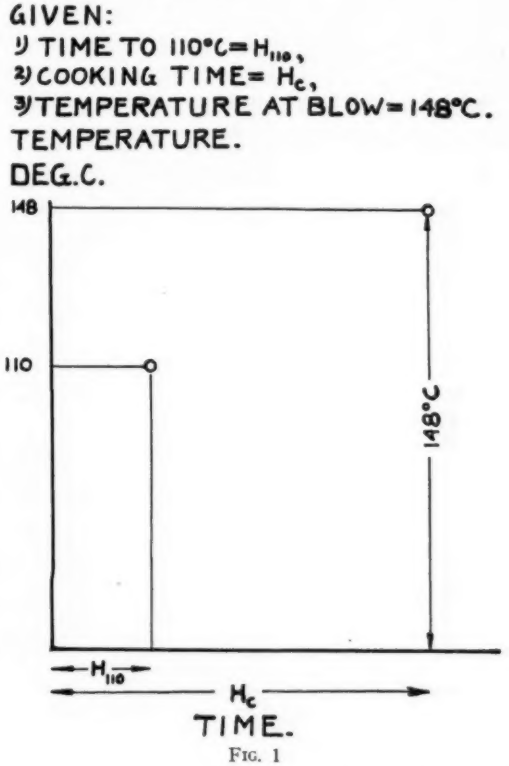

FIG. 1

* To be presented by title at the fall meeting of the Technical Association of the Pulp and Paper Industry, Holyoke, Mass., September 14-16, 1932.
Contribution of the TAPPI Acid Pulping Committee.

[1] Member TAPPI, chemical engineer and superintendent of control department, Smooth Rock Fibre Division, Abitibi Power & Paper Company, Ltd., Smooth Rock Falls, Ont.

The published data show that this conclusion was not sufficiently well warranted. The topmost bent curve did not at all represent conditions such as specified by the limitations made in defining the problem. The cooking time was not of the same length as the time for the other cooks.

The assumption that the three variables can all at the same time be fixed is against all experience and logic. In case a "bent curve" such as the topmost curve is to be compared with a straight line, it becomes necessary to hold a lower maximum temperature for the bent curve when the cooking time must remain unchanged.

When a comparison between the two curves is wanted we cannot give a definite value to more than one of the three variables discussed above, i.e., the cooking time. This is demonstrated in Fig. 3. The alternative of a straight line between 110 and 148 deg. C. with a definite time for heating to 110 deg. C. can then be compared with other alluring alternatives. In Fig. 4 two additional alternatives are given. The straight line is referred to as "Type A." A curve for which the time to 110 deg. C remains unchanged is referred to as "Type B." The cook can be completed with a final temperature of 138 deg. C. instead of 148 deg. C. The benefit of a longer penetration time combined with a lower final temperature (140 instead of 148) can be had when alternative C is followed. In order to save one illustration Fig. 4 does not only demonstrate a principle, it also represents the actual average curves from the experiments that the writer has completed.

In another article the writer intends to make an attempt to demonstrate the practical significance of these facts. This paper is reserved for the presentation of a series of experimental cooks. These cooks have been carried out merely in order to secure experimental proof of a principle of freedom. The actual application of certain ideas that are dependent upon the principle of freedom in cooking was made in a 30 ton digester plant long before any work on the experimental digester was contemplated. Industrial application was confidently recommended by the writer. A certain amount of practical experience in sulphite mills on two continents combined with a study of the literature, especially the literature from the pioneer years in European mills, formed the basis for the recommendation.

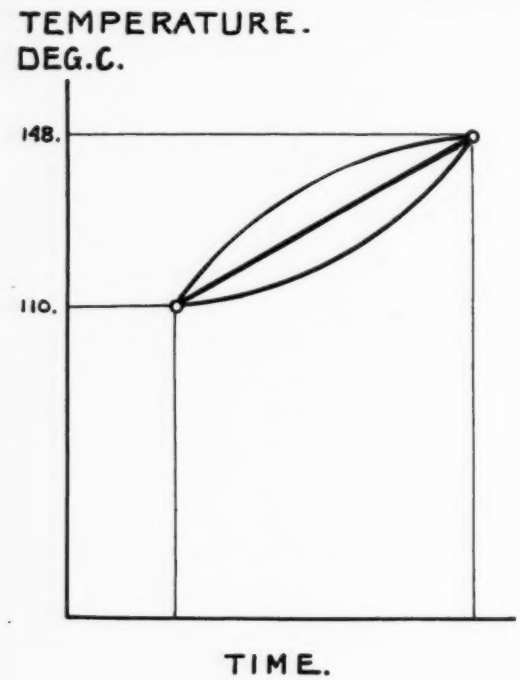

FIG. 2

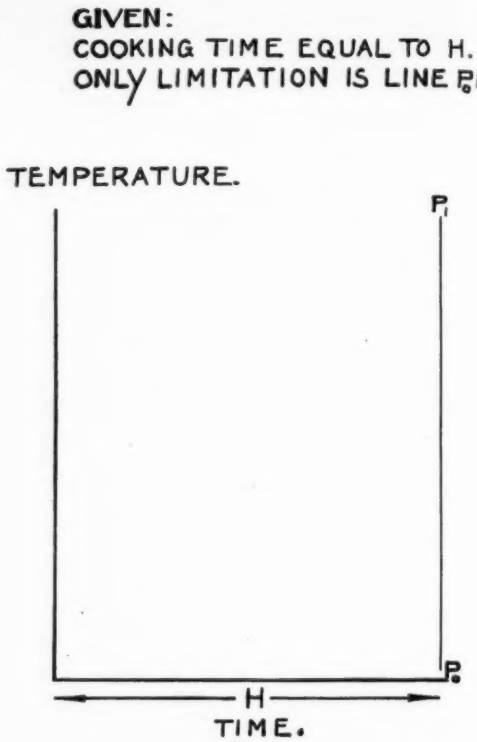

FIG. 3

A Controversy

Experimental work carried out in order to study the pretended advantages of "Type A" in comparison with the other curves has been performed with a small experimental digester.

THE DIGESTER. (Fig. 5.)

The digester was made of stainless steel and had a net volume of 2480 c.c. The thermometer, a calibrated mercury thermometer, was inserted through a packing gland and reached right into the charge. No protecting pocket was used. The digester was heated by being lowered into an oil bath. Inside temperature and oil temperature were both recorded. The oil was stirred vigorously by means of a small motor driven stirrer. The filling density and the acid-wood ratio used were the same as for 30 ton digesters. The chips were kept under the acid by means of a tantalum net-work and a small porcelain crucible.

The writer is aware of the fact that indirect experimental cooking weakens all arguments regarding the controversy when direct cooking is discussed. However, the purpose of the work has been to demonstrate that the temperature curve recommended by Miller and Swanson embodies no special advantages, when the manner in which the temperature is raised is considered alone.

THE CHIPS.

Industrial chips have been used. In order to avoid the publication of data connected to a definite type of chips the work has been carried out on green wood, river wood and seasoned wood in a number of independent cooks. Penetration time has been lengthened where so

necessary and orientation cooks have not been included in the analysis of final results. Whenever "Type A" and "B" have been compared the set of two cooks has been made on the same chips, with the same acid and the same penetration time.

Sizes of chips have been determined. In addition to moisture content the sinkage percentage for each type of chips has been determined.

THE ACID. Total SO_2 5.50 per cent. Combined SO_2 0.94 per cent.

In all cooks the acid was not more than 4 days old. Industrial acid was used. Two acids were always prepared. Natural mill acid with a total just under 5.50 per cent and with the proper combined was selected. One part of this acid was strengthened with rectified burner gas until a strength over 5.50 per cent had been reached. The cooking acid was produced by blending the two acids at the moment when the digester was filled. After blending the acid always possessed a total and a combined as close to the standard as testing and the volatility of the gas allowed. The digester was always lowered into the oil bath immediately after filling and heat was supplied according to schedule.

THE PRESSURE.

In general the pressure was allowed to build up until a gauge pressure of 70 pounds per square inch had been reached. Relieving had the object of maintaining a pressure between 65 and 70 pounds per square inch.

It is noticed that the digester was practically identical with laboratory apparatus for the determination of vapor pressures by the autoclave method. It is therefore no wonder that the resulting pressures were found to represent a definite function of the temperature. When graphs are plotted with the pressures as a dependent variable and the temperature as an independent variable the resulting curves for various cooks differ only with a few pounds in some instances. The deviations are so small

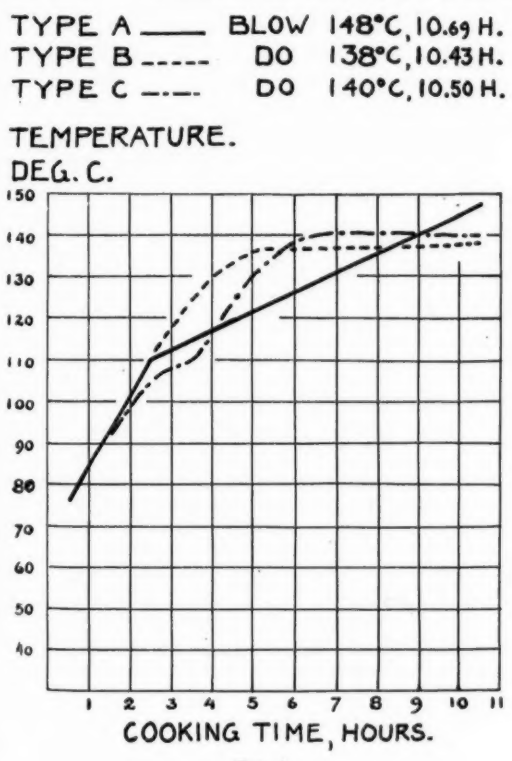

FIG. 4

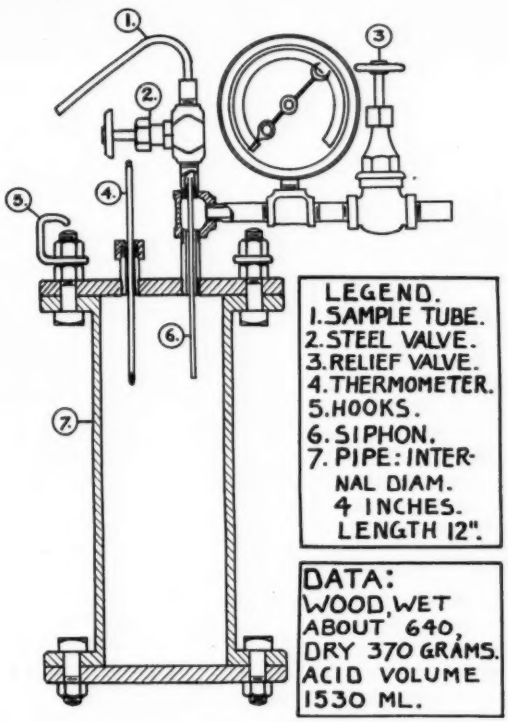

FIG. 5

that they can be said to represent the experimental error or they are variations due to the differences in the wood.

In Fig. 6 the vapor pressure curves for the cooks made according to the alternatives "Type A", "Type B" and "Type C" are shown. The vapor pressure curves give the Total gauge pressure as a function of the temperature when a small digester filled in the manner indicated on Fig. 5 is heated immediately after filling so that the temperature reaches 110 deg. C. somewhere between 2 and 3 hours after filling.

In Fig. 7 the pressure curves corresponding to the temperature curves shown in Fig. 4 are illustrated.

The Determination of Strength, Yield and Bleachability of the Pulp

The strength tests have not been as numerous as could have been desired. In order to secure better accuracy the results in corresponding categories are all averaged. Both initial strength and beaten strength have been studied.

The bleachability is a weighted average of permanganate tests and actual bleach tests carried out with chloride of lime after the bleachability according to an improved Roschier[8] test was known. The figure expresses weight units of bleaching powder (35 per cent Chlorine) consumed per 100 weight units of a.d. unbleached pulp. In addition the results have also in many cases been checked with three determinations with the Björkman[9] permanganate test. The basis of weighting has been: one bleach test, value 2; three Björkman tests, value 2; two Roschier tests, value 1.

The yield. All yield determinations for single cooks are averages of three results. The stock was screened through an 8 cut plate and accepted stock represents all stock that will pass. Total yield includes knots and screenings.

The Results

Yield as a function of Bleachability.

The yields of cooks according to "Type A" are assembled in Table I and the corresponding data for "Type

B" are given in Table II. All these results are graphically rendered in Fig. 8 (accepted yield) and Fig. 9 (total yield).

TABLE I—"TYPE A"

Cook No.	Bleachability	Total Yield	Accepted Yield
17	21.15	49.9	48.2
23	22.48	49.9	48.5
46	22.87	49.3	49.0
24	24.0	51.0	49.2
15	24.25	48.4	46.4
48	24.59	47.7	46.4
26	28.6	51.2	49.4
8	35.02	53.0	47.0
7	36.29	51.4	45.0

TABLE II—"TYPE B"

Cook No.	Bleachability	Total Yield	Accepted Yield
18	11.36	47.2	45.8
43	14.4	48.5	48.2
28	17.0	48.0	47.2
16	17.14	47.5	45.9
27	22.17	48.2	47.4
44	23.5	50.4	49.6
29	23.68	48.9	47.8
45	25.0	48.9	48.1
47	26.25	50.3	48.3
10	27.23	52.4	47.2
11	29.49	54.3	49.2

In commercial operation with 30 ton digesters the production of a pulp of lower bleachability (18 to 22 per cent) became possible only after the introduction of "flat" cooking curves such as "Type B." The main theoretical reasons for the favoring of such a practice are all connected with the concept of circulation. These details are to be discussed in a special paper.

It is interesting to note that curve "Type A" leads to a harder stock also in a small digester where no difference in the distribution of heat prevails. That the small digester is uniformly heated has been demonstrated in several experiments.

I do not want to overstress the significance of the experimental evidence regarding the tendency to obtain harder stock by means of curve "Type A." It was demonstrated above that the pressure is more directly a function of the temperature in a small digester than in a large digester. A study of the temperature curves and the pressure curves will reveal that the flat curve, due

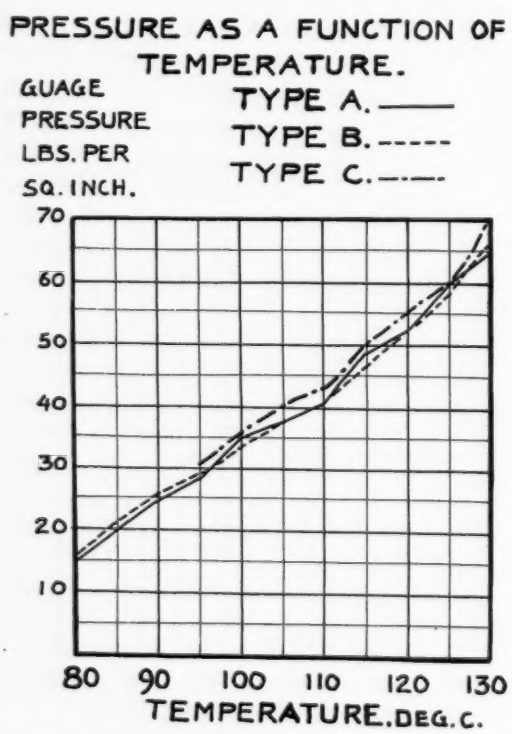

FIG. 6

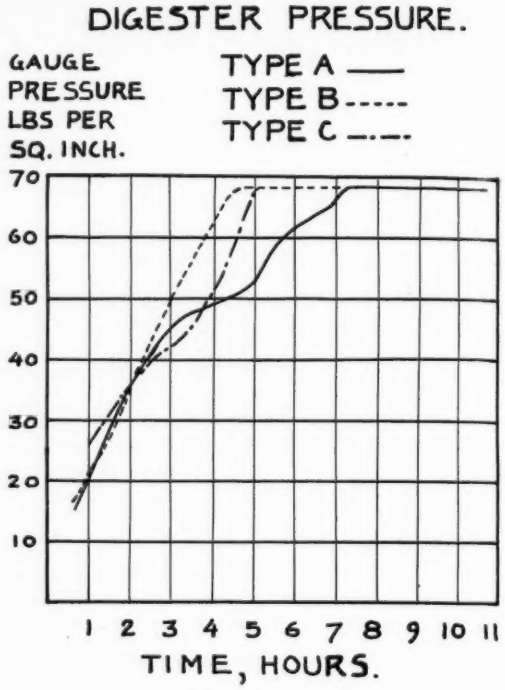

FIG. 7

to earlier rise in temperature gives an advantage in regard to pressure during the initial part of the cook. The cook according to "Type A" is not "up to pressure" (50 pounds) sufficiently early. It will not help to go faster to 110 deg. C. Such an effort will only increase the percentage of tailings.

Average Conditions for Cooking and Average Results

Cooks	Cook Numbers
Type A	7, 8, 15, 17, 23, 24, 26, 46, 48
Type B	10, 11, 16, 18, 27, 28, 29, 43, 44, 45, 47

Each cook in the series for "Type A" has a corresponding cook in the series for "Type B." Such corresponding cooks have been carried out with strictly the same acid and the same chips. An exception is furnished by 43, 44, 45. These cooks are all alike and in order not to change the weight of figures in the final average, the results of these three cooks are averaged separately and the arithmetical means used as highly accurate data from a single cook.

In Table III the results are listed.

TABLE III

Cook Type	Ratio: Acid/B.D. Wood	Acid: Total SO_2	Acid: Comb. SO_2	Cooking Time	Time to 110 Deg.	Accepted Yield	Screenings Per cent of accept.	Bleachability
"A"	4.23	5.48	.93	10.69	2.48	47.7	5.35	26.58
"B"	4.13	5.49	.95	10.43	2.49	47.5	4.37	21.70

The graphs in Fig. 8 and Fig. 9 allow a strict comparison of the yields. We obtain the following data.

Cook Type	Bleachability Per cent	Accepted Yield Per cent	Total Yield Per cent
"A"	26.58	47.7	50.3
"B"	26.58	48.5	51.3

The writer is always sceptical. Although evidence, showing that "Type B" is superior, has been accumulated, I will conservatively suggest that no reason exists to give preference to "Type A."

The results are demonstrated in Tables IV, V and VI.

TABLE IV—INITIAL STRENGTH

"Type A"—Cooks 46 and 48
"Type B"—Cooks 43, 44, 45 and 47

Type of Cook	Number of Tests	Mullen	Elmendorf	Value	Fold	Freeness	Bleachability
"A"	2	64	236	91.1	810	720	23.73
"B"	4	67	231	91.2	1041	725	22.29

TABLE V—SPECIAL BEATER TEST

"Type A"—Cooks 7, 8, 15, 17
"Type B"—Cooks 10, 11, 16, 18

Type of Cook	Number of Tests	Mullen 20 min.	Mullen Maximum	Elmendorf 80'	Fold 70'	Freeness 80'	Bleachability
"A"	2	117.1	127.1	164	5174	47	29.18
"B"	2	117.6	125.4	160	5625	38.5	21.30

TABLE VI—LARGER BEATER CHARGE

"Type A"—Cooks 23, 24 and 26
"Type B"—Cooks 27, 28 and 29

Type of Cook	Number of Tests	Mullen 20 min.	Mullen Maximum	Elmendorf 40 min.	Elmendorf 80 min.	Fold 70 min.	Freeness 80 min.	Bleachability
"A"	1	110.4	118.5	195	182	4026	111	25.03
"B"	1	109.2	120.1	233	204	5092	115	20.95

In general the differences are small. I have endeavored to exclude the influence of experimental errors by making the tests according to 3 different methods and by making sufficiently many tests in each group. The optimist would see an advantage in "Type B." The sceptic will conclude that no distinct preference is justified unless other reasons than those illustrated here would have a bearing upon the decision.

In full scale commercial operation with 30 ton digesters "Type B" gives a much more distinctly superior pulp. Naturally the time required for the heating to 110 deg. C. must be modified.

More Freedom

The results presented above fully support the argument which the writer outlined in the beginning of this paper.

TABLE VII—TEMPERATURE ACCORDING TO "TYPE C," FIG. 4

Number of cooks	1
Cooking time, hours	10.50
Time to 110 deg. C.	3.50
Yield:	
Total	50.0
Accepted	49.4
Bleachability	19.33
Initial strength:	
Mullen	97.0
Elmendorf	212
Value	101.5
Folds	1631
Freeness	720

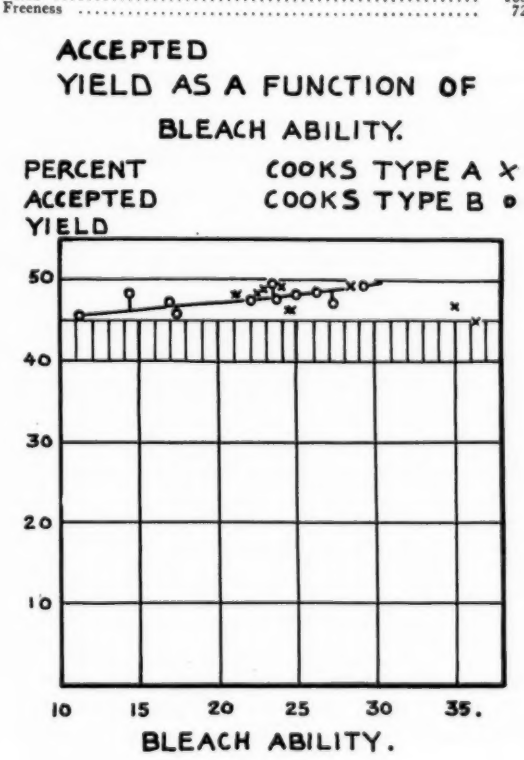

FIG. 8

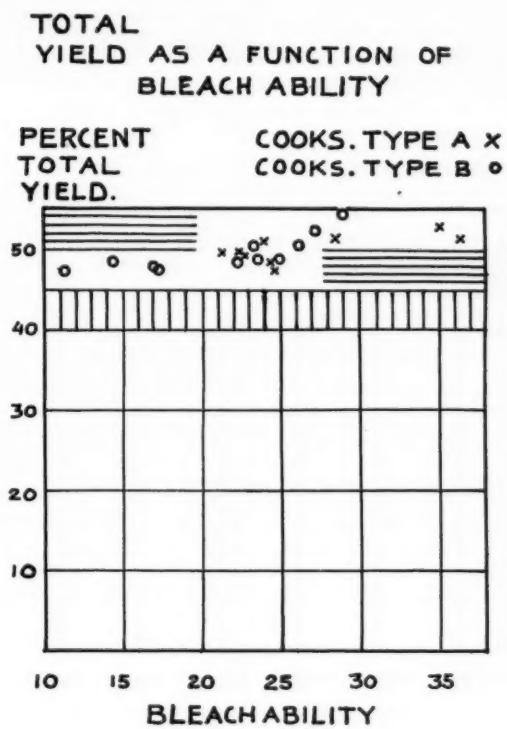

FIG. 9

It is possible to cook a better stock by a proper application of fundamental principles of cooking than by an imitation of a recommended "optimum schedule."

A cook according to curve "Type C," Fig. 4, gave much better results than most of the cooks according to "A" and "B". The results are shown in Table VII.

These results are not surprising. Later on in another article it will be shown that a cook according to "Type C" cannot be applied to a 30 ton digester unless forced circulation is resorted to. In view of this as well as the fact that "Type C" is of little interest in connection with the controversy between "Type A" and "Type B" I have been satisfied with only one cook according to "C."

The results of the work outlined above give the sulphite engineer more freedom in his planning of cooking methods. The writer has presented a comparison between two temperature curves under the general assumption that a given cooking time should be preferred. The reader should not take this as an argument in favor of a definite cooking time. The cooking time remains one of the main variables and an analysis of local Mill features as well as a scrutiny of all the elements of cost including capital charges and market possibilities is necessary before any idea at all regarding the "proper cooking time" can be formed. When the cooking depends on natural circulation certain cooking times have a tendency to harmonize with the circulation. Often a slightly slower steaming leads to difficulties.

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Chemical Trim Process *

L. M. Booth[1]

Summary

I. A plea for more of fundamental data such as are necessary for a better understanding of the chemical aspects of sheet formation.

II. A control process whereby the intensity and also the quantity of acidity of the water carrying the stock may be accurately adjusted.

I. CURRENT MILL PRACTICE

During recent years most paper mills have adopted pH tests for guidance in controlling the chemical aspects of paper making. This practice may be justified on the grounds that the tests are easy to make and the data tell something. Unfortunately the amount of information obtained under ordinary conditions is inadequate. While pH tests furnish certain valuable clues concerning chemical conditions, the paper making results obtained as a consequence of relying solely on such data are frequently disappointing. By no means is it the intention to disparage pH tests, but rather to condemn the sketchy manner in which the data are frequently interpreted, wherein unwarranted conclusions are drawn.

Usually tests of stock taken from the beaters are relied upon. This procedure has a logical basis since it is common practice to make chemical adjustments by batch application of the necessary corrective while the stock is in the beater or chest. In other instances where pH tests of the white water are in vogue, their utility is limited. This is because it is not feasible to immediately apply suitable corrective chemical treatment by means of the usual batch application to the water and stock going directly to the machine.

The serious objection to the prevalent control test method is because pH readings do not furnish enough of information. Where it is the practice to control paper making by means of titration alone, this latter also leaves much to be desired, since pH determinations are essential for close control of color work as well as for sizing.

Hydrogen ion determinations, as recorded in pH values in paper making, indicate merely the *intensity* of acidity. While of course the paper maker is interested in this factor, he should also be interested in knowing the *quantity* of acidity present in the water with which the sheet is formed. In actual practice, due to the presence of buffer substances which occur in paper making systems, he cannot measure the amount of excess alum in the furnish by pH methods. However, he can determine the quantity of acidity by titration.

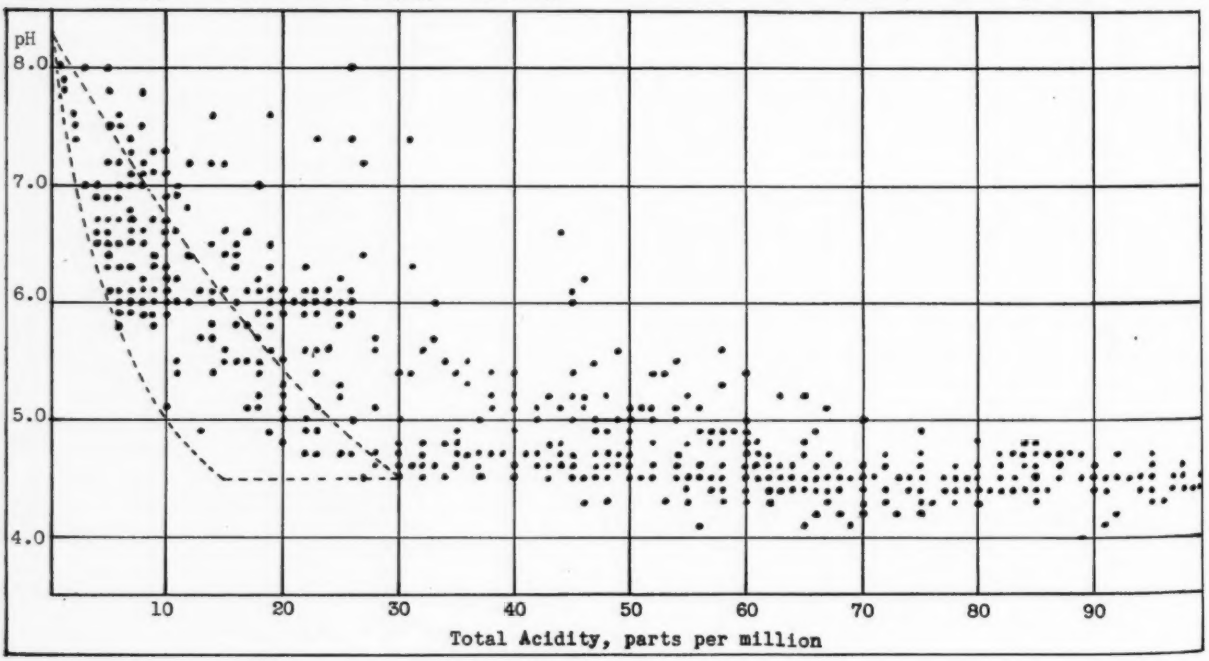
The present discussion relates primarily to papers made from furnishes which are of an acid nature. In cases where *alkaline* stocks are involved, such as are commonly used for certain grades of paper board, the quantity of *alkalinity* as determined by titration should be ascertained as well as the pH value. It is just as necessary to make quantitative determinations for alkaline stock as for acid stock. The quality of water with which any sheet is formed is an important consideration, regardless of whether it is sized or unsized, colored or uncolored.

The Total Acidity Test

The standard method for determining total acidity recommended by the American Water Works Association for water testing is well adapted to paper making requirements. This test involves titration to a definite pink color with fiftieth normal (N/50) sodium hydroxide solution.

* To be presented at the fall meeting of the Technical Association of the Pulp and Paper Industry, Holyoke, Mass., September 14-16, 1932. Contribution of the TAPPI Waste Committee.

[1] Member TAPPI, president, Booth Chemical Company, Elizabeth, N. J.



WHITE WATER CHARACTERISTICS

using Phenolphthalein as the indicator. When using 100 c.c. of water for the test, the number of cubic centimeters of sodium hydroxide used multiplied by ten gives the result as total acidity, expressed in parts per million of calcium carbonate.

By means of total acidity, in addition to pH data, both quantity and intensity of acidity present may be properly evaluated. The mutual relationship of the respective chemical factors has an important bearing on sheet formation.

By reference to the accompanying graph of pH and total acidity data from a number of paper machine white waters it will be noted that for any particular pH value there may be a number of different total acidity values. This readily indicates why reliance can not be placed solely on pH control. In addition it will be noted that for identical total acidity values the pH values do not remain constant, so that control by titration alone is also inadequate. In view of the above it appears that both pH and total acidity data are needed if dependable information are desired. As a result of the study of pH and total acidity test data from a number of paper machines, one finds that while pH values may range through narrow limits for a particular paper making system—assuming that it is carefully operated—the total acidity is apt to vary widely. Under these circumstances there need be no wonder as to the reason for variations in the characteristics of the paper.

Among the total acidity readings which our friends have sent us as a result of their investigations, there are a number which vastly exceed the limits of the above graph. Values as high as 500 parts per million of total acidity have been reported in instances where high acidity paper is made.

II. INTERPRETATION OF DATA

Surveys of operating conditions indicate that for any given pH value, the lower total acidity values make for decreased foam, better sheet formation, increased strength and better finish. It is desirable to maintain the total acidity at close to the practical minimum for the corresponding pH value.

Of course one means of working toward this end is to furnish no more of alum than is needed. This plan, however, is not entirely effective since there are appreciable variations in the chemical characteristics of the pulp which must be taken into consideration. On this account, as experience has taught, it is desirable to furnish more than the actual requirement of alum.

The human element must always be reckoned with when appraising the results of batch application of size and alum. Unless the pulp be of uniform quality and the men are perfect, it is apparently a forlorn hope to expect that the chemical qualities of the water carrying the stock to the machine can be accurately controlled by the customary furnishing of chemicals in the beater room. Besides, during the interval between the time when the beaters are furnished and the sheet is formed, many variables are introduced.

While of course there should be no relaxation of effort to insure that the stock as dumped from the beaters shall be as nearly uniform as possible, we must recognize the fact that the water conveying the stock which the machine tender receives is not chemically uniform. Under the conditions generally prevailing he has to take the stock as it comes and content himself with making mechanical adjustments in his endeavor to overcome deviations from chemical uniformity.

While we have heard a great deal about how "The paper is made in the beater," practical experience shows that even though the pulp may be satisfactory, the sheet may be poorly formed on the machine. If for the moment we consider one-half per cent consistency stock, of which the 1 part of the stock is well prepared, yet the 199 parts of water carrying it to the wire do not have to be far out of line before trouble ensues.

Appropriate Adjustment

If the order calls for a sheet 100 inch trim, the cutters are set accordingly. The men who make paper do not make all of their mechanical adjustments in the beater room. Surely it is not logical to attempt the control of a chemical engineering process, such as paper making, without utilizing modern facilities for *chemical adjustment at the machine.*

The best means of making paper which is to be formed in an acid medium is first to furnish the beater in the time-honored manner which includes an excess of alum when setting size and color. The final accurate adjustments can later be made by reducing this acidity to the desired point. This is effectively accomplished by the application of a suitable alkaline compensating treatment to the water suspension of stock just before it reaches the machine. This is exactly what is accomplished by the Chemical Trim Process in the manufacture of acid or mildly alkaline papers.

A Tentative Standard

The area bounded by the broken lines on the graph indicates the desirable limits within which total acidity should be maintained for various pH values within the range of operations considered. Quite naturally in some instances it will be found to be desirable to deviate somewhat from the standard which has been tentatively established. However, wide variations are not to be tolerated.

The standard has been established from data selected from a number of machines which are known to be operated under favorable water conditions, as follows:

(a) Making unsized paper with water of a high degree of purity.

(b) Making various kinds of unsized, sized and colored papers and boards, but where the quality of the water carrying the stock to the wire has been suitably adjusted by the chemical trim process.

In our work of setting standards for each paper making operation we first establish the optimum pH point. When once this standard has been set, it can readily be adhered to. The next step is gradually to lower the amount of total acidity until it comes within the desired limits.

Where a new grade of paper is being developed it is particularly important to first standardize on water quality and thus eliminate variations in the paper or board which would otherwise arise from water causes. Where short runs are involved, water control is also particularly useful in bringing the sheet up to standard in the minimum time.

Although the results of tests when plotted may fall within the area indicated, it must not be concluded that the sheet is necessarily being formed under optimum conditions. In numerous instances our investigations have shown that the particular sheet involved should be formed under different water conditions. However, the water changes indicated have resulted merely in shifting the point to another location within the standard area.

While our records show that good sheet formation has been attained in many instances, when the tests of white water as drained from the wire are outside the limits which have been set, we have no record of poor sheet formation or other unfavorable characteristics of the fin-

ished product which may be traceable to water conditions when the test points are properly located within the prescribed area.

Sized Paper Under Less Acid Conditions

Frequently where highly sized papers are being made at specified pH values it is feasible to change the pH of the water at the point of sheet formation to a higher value and still insure equal or better size and color retention. The reason why effective sizing is accomplished, even at a saving of size and alum furnished, is because of the coagulating influence of aluminum hydroxides. This latter is produced by the trim chemical which is added, reacting with a portion of the excess alum which was furnished in the beater.

Water for Forming the Sheet

None of the expressions in this paper relate to quality of water for stock preparation. We are of the opinion, based upon information collected from numerous sources, that the quality of water which is best for beaters is not well suited to sheet formation. It seems entirely logical that the quality requirements should be different, since the functions performed in the beater room relate primarily to distribution and dispersion, whereas it is the business of the paper machine to assemble and form, obviously an entirely different function.

It is one of the advantages of the chemical trim process that one may use soft water for beaters and later, just before the stock goes to the machine, hydrated lime, for example, may be applied by means of a dry feeder, to reduce the acidity to the desired extent and at the same time gain an advantage which in water purification is referred to as "double coagulation." When hydrated lime is applied to a water carrying carbon dioxide and sulphate of aluminum, aluminum hydroxide is produced. This precipitate has a highly efficient coagulating effect so that finely divided size alum precipitate which would otherwise be drained off with the white water is held in the sheet as effective sizing material.

One result of the use of the process is to purify the white water, since the acidity is reduced and it carries less of the size-alum precipitate. In many instances it is superior to fresh water. This is an attractive advantage for closed system operation.

Conclusions

We welcome correspondence with those who are interested in making surveys of their own procedure in the manufacture of either sized or unsized paper or board. After a preliminary investigation the usual conclusions are:

1. That the quality of the water at the point of sheet formation varies for each of the sheets made, regardless of the care exercised in the beater room in the endeavor to maintain uniformity.
2. That there is undoubtedly an optimum water condition for the formation of each sheet.
3. That the water should be kept uniform in quality.

From this point it is but a relatively simple and inexpensive step to obtain the desired results by means of the chemical trim process which is covered by patents issued and pending.

Alignment and Line Coördinate Charts*

D. S. Davis[1]

Graphical methods of one sort or another have enjoyed considerable vogue among operating and technical men. Such methods vary from those which deal primarily with the presentation of test data to those in which the performance of a calculation is the dominant feature. Notable among the latter type are alignment and line coördinate charts, both of which are characterized by their accuracy and the ease and rapidity with which they may be used.

* To be presented at the fall meeting of the Technical Association of the Pulp and Paper Industry, Holyoke, Mass., September 14-16, 1932.

[1] Member TAPPI; mathematician, Dale S. Davis' Associates, East Northfield, Mass.

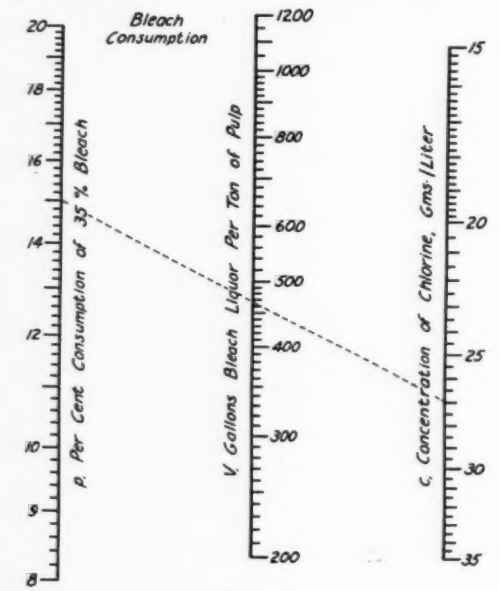


FIG. 1

Alignment Charts

An alignment chart, often called a nomograph or nomogram, is, basically, an arrangment of three scales which can be cut by a straight line in values satisfying a known equation. In addition to knowing the equation involved (or having at hand a sample calculation or sufficient data from which the equation may be derived) one must be given the ranges of the variables and have an idea as to the precision possible or desired. The following illustration will serve to clarify these points.

Fig. 1 is an alignment chart dealing with the calculation of bleach requirement, V, in gallons of bleach liquor per ton of pulp when laboratory tests have shown the bleach consumption for a given pulp to be p per cent of 35 per cent bleach and the concentration of chlorine in the bleach liquor to be c grams per liter. The equation is

$$V = \frac{2000 \times p \times 35 \times 453.6}{100 \times c \times 100 \times 3.785}$$

or, combining the constants,

$$V = 838.8 \frac{p}{c}$$

and p is taken to vary between 8 and 20 per cent while c is taken to range between 15 and 35 grams per liter, and it is desired that it be possible to estimate tenths of one per cent on the p-scale and tenths of a gram per liter on the

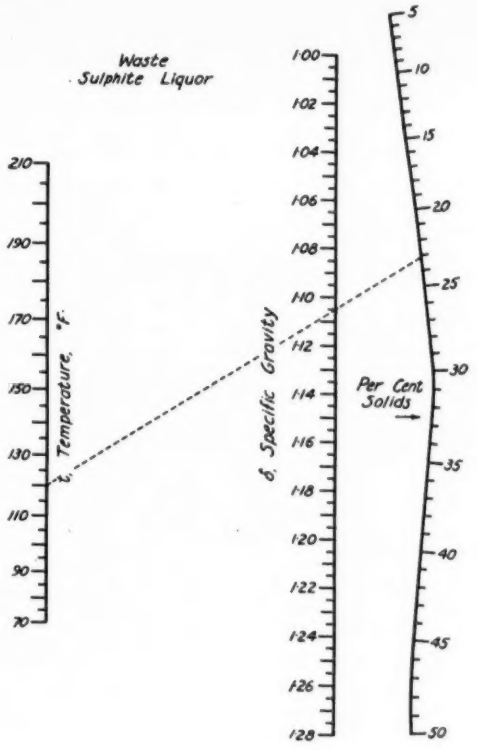


FIG. 2

c-scale. The dotted line indicates that 466 gallons of bleach liquor, analyzing 27 grams of chlorine per liter will be required to bleach one ton of pulp when the bleach consumption is 15 per cent, expressed as 35 per cent bleach.

Detailed methods of construction of alignment charts have been given previously[2] and need not be repeated here. The following table lists alignment charts of particular pulp and paper interest which have appeared in the recent literature together with their reference numbers.

Table I

Subject	Reference Number
Calender Roll Weight	4
Length of Paper in a Roll	2
Freeness, Schopper Riegler Tester	3
Freeness, Canadian Standard Tester	5
Paper Machine Production	3, 7
Whitewater losses	2, 3
Specific Gravity of Chipboard	3
Drying of Paper	6

Line Coördinate Charts

While alignment charts are sufficient for most pulp and paper calculations there is occasional need for a diagram capable of handling an instance where the exact nature of the relationship between the variables is unknown. Such a diagram is termed a line coördinate chart and consists of three axes, two of which are parallel, while the third is generally a somewhat erratic curve.

Fig. 2 is a line coördinate chart dealing with the determination of solids in waste sulphite liquor when the specific gravity, δ, and the temperature, t, in degrees Fahrenheit are known, and is based upon the data of Moore.[8] On ordinary cross section paper δ and t, for various percentages of solids, plot as a family of curves concave toward the origin while δ and $0.6428\ (1 + 0.00397t)t$ plot as a family of straight lines. It is these latter functions which are plotted in opposite directions on the parallel δ and t-axes in Fig. 2. The scale labelled "Per Cent Solids" is the locus of the intersections of pairs of lines connecting corresponding specific gravity and temperature values.

The dotted line indicates that a sample of waste sulphite liquor concentrated to the point where its specific gravity is 1.105 at 120 deg. F. contains 23.2 per cent solids.

For an excellent discussion of the mechanics of line coördinate charts the reader is referred to a paper by Ravenscroft.[9]

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Beating by Impact *

By Arthur B. Green[1]

Through the centuries of paper making, important among the problems of the industry has always been the problem of beating. Few industrial processes have called forth more speculation. In cycles, something like the cycles in business, waves of discontent with the process as it is have swept across the field and spent themselves in costly efforts to substitute something else. Such a wave came in the years from 1890 to 1910, when machinery men and mill men spent large sums of money building new types of beaters and trying them. Another such wave seems to be rising today. Yet, at least thus far, the open-tub beater with all its faults refuses to be supplanted; and in equal degree, at least thus far, the minds of paper makers refuse to be wholly satisfied with it.

Two courses are open today from which to choose one. We may swear undying allegiance to the open-tub beater, on the ground that it has already stood every practical test, and withstood every scientific attack. Or we may pursue the course of inquiry, asking why it is that so little real progress has been made in spite of the enormous effort already expended and the apparently vast possibilities. If we take the latter course, we have first to look into the past and see if there have been any mistakes of conception or method which might account for the lack of result, and at the same time guide the work of today in better channels.

All through the past, beating has suffered from lack of definition. Like any other manufacturing process, beating is composed of means of affecting in desirable ways the material that is being converted from its raw to its marketable state. Beating is complex, not simple. A considerable list can be written of the many separate actions which the stock undergoes as it passes through the open-tub beater. That list has not been written in the past. Another equally important list can be written of the many paper-making characteristics which can be imparted to stock by the beater. That list includes what might also be called the properties of the finished paper, the specifications on which paper may be bought, the

* To be presented at the fall meeting of the Technical Association of the Pulp and Paper Industry, Holyoke, Mass., September 14-16, 1932.

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qualities which make paper marketable. That list, too, has not been written in the past. And finally, an equation can be written to show the relation of each separate action imposed on the stock by the beater to every paper-making characteristic of the finished product. Such an equation can be written, but it will take study of the closest analytical sort to derive it. That sort of study, and the equation itself, have been no part of the work of the past.

Although no one to date has seriously entered upon this engineering treatment of the subject, the two lists just cited might be put in suggestive form, with no pretense of being well drawn or complete, and of course without the equation between them which is still far from taking form:—

Mechanical Actions of Beating

Cutting
Crushing
Rubbing between surfaces
Pounding between surfaces
Hydraulic pressure
Rubbing, fibers upon each other
Impact against surfaces
Impact, fibers against each other
Heating
Aeration, or its opposite

Paper-Making Characteristics

Bursting strength
Folding strength
Tearing strength
Shrinkage on drying
Sizing effect
Formation
Bulk
Tensile strength
Curl
Porosity

The Engineering Method

In the work of today, and in that of the future, money and time in enormous amounts can be saved if the engineering method will be used. An investigation of beating can start today with certain strong advantages over the past, because every item in both of these lists can now be measured and expressed in exact terms. The work of analysis can be done on a small scale at small expense, saving the construction of mill-scale equipment until data are on hand pointing the way to safe design, which will have to undergo the minimum of change and adaptation. To expect that new types of beaters can spring full-grown into success before their function is known in detail is to court waste and discouragement.

Nor is it to be expected that the data arrived at through this course of work will point to one machine which, when built on the mill scale, will substitute for the open-tub beater everywhere. Like many other empirical designs, the open-tub beater has been applied almost universally, simply because nothing better came to hand, but its scope of application is obviously too wide for efficiency. If the open-tub beater should in the end prove the best for greaseproof paper, it could hardly be equally good for blotting or for coarse board middles. To put the same thought in other terms, when we pick to pieces by planned experiment the ten or more separate mechanical actions of the beater, we may expect to find one combination of them suited to one class of paper-making, and another combination of the same actions suited to another class. We may find even more. We may reasonably find that the beater does some things which can be eliminated for one class of paper-making, and other things which, while needed for one class, are useless for another class. The attempt to make a better machine than the open-tub beater will ultimately divide itself into finding for each class of work that combination of elementary actions most economical for that class of work. It is time that machines cease to be introduced as substitutes for beaters.

For a fraction of one per cent of all the money that has gone into beating equipment discarded because it would not compete, the entire program as sketched here could be completed. A manufacturer making more than one hundred tons daily could put this program through as related to his line for less than the salary of a good man, or for a small percentage of the advertising appropriation. It is hard to think of anything which would better secure the future of a paper making business, and reduce its speculative hazards, than to have command of the facts in one of the foundation processes, and to have equipment and methods of doing work that are designed for the job.

Impact Against Surfaces

But in the absence of that, there is still something to be done. Not all phases of the development can be attended to short of carrying out the whole program, taking up one by one every possible mechanical action and studying it with relation to each and every measurable paper quality; but if one mechanical action can be readily devised by itself, its value as a step in paper making can be ascertained. Such is the case with the seventh in our list, namely, impact against surfaces.

The necessary velocity to obtain violent impact, if that is the only thing to be obtained, can be developed at a low expenditure of power. The result is an exceptionally high development of tearing strength and folding strength, an increase in bursting strength which is high but not proportionally so, while the stock is not made slower than ordinary open-tub treatment makes it. These conclusions are drawn from tests made on a semi-commercial scale using unbleached sulphite. The results were compared with the best available results obtained from a study of Hollander beaters working on bleached sulphite and soda pulp. Such a comparison is not, of course, direct. The unbleached sulphite used in the tests was from West Coast wood and had been through the Fidalgo drying process. The bleached stocks used in the beater studies were wet from the bleaching process. Wet sulphite responds more readily to beating than dry, and bleached more readily than unbleached. For the same number of horsepower-hours per air dry ton, the impact treatment showed in the proportion of five times as much tearing and folding strength, and three times as much bursting strength, as the Hollander treatment. When it is possible to make these comparisons directly on the same stocks at the same times, it is expected that these ratios will be sustained, if not exceeded.

Such results would promise high economic value. They would fit in any mill where strength and toughness are sought without the necessity of running the paper machine slow. Since the velocity for impact is developed from a form of centrifugal, the apparatus is simple in principle, light in weight, economical of floor space, and can be utilized in almost any existing layout. Upkeep should be low. There is no metal-to-metal contact, nor even as much as hydraulic shear, to consume power and produce wear. So far as can be foreseen, wear would not detract from the operation. The apparatus is also accessible and easy to clean. Application for patent has been made.

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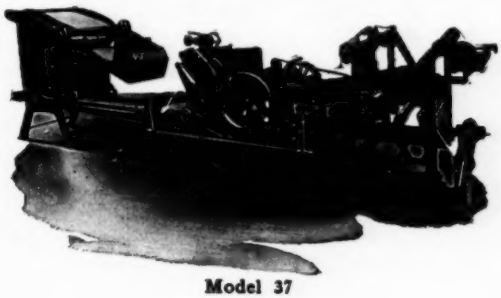

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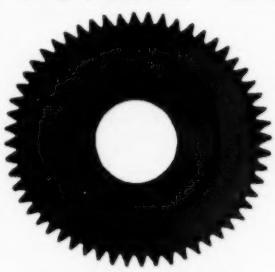

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PULP GRINDERS, THREE OR FOUR POCKET (Roller Bearings)

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RAY SMYTHE, 301 PARK BLDG., PORTLAND, ORE.
Western Representative

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING AUGUST 27, 1932

CIGARETTE PAPER

Champagne Paper Corp., France, Havre, 80 cs.; American Tobacco Co., Ile de France, Havre, 400 cs.; De Manduit Paper Corp., Ile de France, Havre, 100 cs.; Standard Products Corp., Ile de France, Havre, 33 cs.; Champagne Paper Corp., Ile de France, Havre, 34 cs.; Champagne Paper Corp., Liberty, Havre, 143 cs.; P. J. Schweitzer, Excambion, Marseilles, 22 cs.

WALL PAPER

Schmidt & Pritchard, Leviathan, Bremen, 1 bl.; J. E. Bernard & Co., Leviathan, Bremen, 1 bl.; Universal Car Loading Co., Aquitania, Southampton, 1 bl.

PAPER HANGINGS

W. H. S. Lloyd & Co., American Trader, London, 3 cs.

NEWS PRINT

Parsons & Whittemore, Inc., Stavangerfjord, Oslo, 195 rolls; ——, Stavangerfjord, Oslo, 328 rolls, 125 bls.; Jay Madden Corp., Stuttgart, Bremen, 141 rolls; ——, Scanstates, Kotka, 437 rolls; ——, New York, Hamburg, 38 rolls.

PRINTING PAPER

E. Dietzgen & Co., Rotterdam, Rotterdam, 4 cs.; E. Dietzgen & Co., New York, Hamburg, 4 cs.; Int'l Forwarding Co., H. Jaspar, Antwerp, 15 cs.

FILTER PAPER

C. Schleicher & Schull Co. Inc., American Importer, Hamburg, 11 cs.; H. Reeve Angel & Co. Inc., American Trader, London, 9 cs.; A. Giese & Son, Aquitania, Southampton, 16 bls.

COLORED PAPER

F. Murray Hill, Pr. Harding, Hamburg, 8 cs.

SURFACE COATED PAPER

Gevaert Co. of America, Westernland, Antwerp, 65 cs.

METAL COATED PAPER

Globe Shipping Co., Europa, Bremen, 37 cs.; Hensel Bruckman & Lorbacher, New York, Hamburg, 3 cs.; K. Pauli Co., New York, Hamburg, 21 cs.

COATED PAPER

Happel & McAvoy, Pr. Harding, Hamburg, 2 cs.; Happel & McAvoy, New York, Hamburg, 2 cs.

PHOTO PAPER

Davies Turner & Co., New York, Hamburg, 1 cs.

TISSUE PAPER

W. J. Byrnes, Lancastria, London, 2 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Britannic, Liverpool, 4 cs. (simplex) C. W. Sellers, Europa, Bremen, 2 cs.

PARCHMENT PAPER

Globe Shipping Co., New York, Hamburg, 2 cs.

WRITING PAPER

Independent F'd'g Co., Ile de France, Havre, 5 cs.

ENVELOPES

Beckhard Simfred Co., New York, Hamburg, 2 cs.

FELT PAPER

Heemsoth Basse & Co., Rotterdam, Rotterdam, 12 bls.

TRACING PAPER

Bush Service Corp., New York, Hamburg, 1 cs.

COVER PAPER

Int'l Forwarding Co., New York, Hamburg, 4 cs.

PASTE BOARD

Chase National Bank, Pr. Harding, Hamburg, 25 bls.

RAW CARD

F. C. Strype, Stuttgart, Bremen, 19 cs.

MISCELLANEOUS PAPER

Denver Chemical Co., Ile de France, Havre, 7 cs.; Remington Rand, Inc., New York, Hamburg, 17 cs.

RAGS, BAGGINGS, ETC.

J. Cohen Son Co., American Trader, London, 40 bls. rags; E. J. Keller Co. Inc., Pr. Harding, ——, 35 bls. rags.

HIDE GLUE

——, Stuttgart, Bremen, 100 bags.

BONE GLUE

——, New York, Hamburg, 25 bags.

OLD ROPE

W. J. Sheridan, Ancon, Cristobal, 102 bdls.; E. J. Keller Co. Inc., Excambion, ——, 193 coils.

WOOD PULP

Castle & Overton, Inc., Rotterdam, Rotterdam, 125 bls. wood pulp; A. Giese & Son, Rotterdam, Rotterdam, 50 bls. wood pulp; E. M. Sergeant & Co., Stavangerfjord, Oslo, 150 bls. chemical pulp; Chemical National Bank, Stavangerfjord, Oslo, 475 bls. sulphite; Gottesman & Co. Inc., Stavangerfjord, Drammen, 1000 bls. sulphite; Irving Trust Co., Stuttgart, Bremen, 300 bls. wood pulp; Castle & Overton Inc., West Eldara, Rotterdam, 560 bls. wood pulp, 112 tons; E. J. Keller Co. Inc., Scanstates, ——, 338 bls. wood pulp, 50 tons; Gottesman & Co. Inc., Scanstates, Gdynia, 2948 bls. wood pulp; E. Hannson, Scanstates, Gdynia, 686 bls. wood pulp, 105 tons; Lagerloef Trading Co., Scan-

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and
QUALITY

at fair prices is our Motto.

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are meeting with universal success in all sections of the country.

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(PAPER MAKERS' ALUM)

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Also BAKER & ADAMSON C.P. ACIDS..REAGENTS *and* FINE CHEMICALS

West Virginia Pulp and Paper Company

Manufacturers of

SUPERCALENDERED and MACHINE FINISHED BOOK and LITHOGRAPHIC PAPERS

Offset, Envelope, Bond, Writing, Cover and Music Paper, Index Bristol, Post Card and Label Papers

High Grade Coated Book

also

KRAFT WRAPPING AND KRAFT ENVELOPE

Bleached Spruce Sulphite Pulp, Soda and Kraft Pulp

230 Park Ave. New York | 35 East Wacker Drive Chicago

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Sixth and Chestnut Sts., Philadelphia, Pa.

THE DRAPER FELTS

All kinds and styles of Felts for all kinds and styles of Papers.

Write us about your Felt problems and let us help you reduce your Felt Costs—we will call anywhere at any time.

DRAPER BROS. COMPANY

CANTON, MASS.

Woolen manufacturers since 1856

states, Helsingfors, 760 bls. sulphite, 126 tons; ——, Scanstates, Wiborg, 626 bls. sulphite, 109 tons; Castle & Overton Inc., Scanstates, Wiborg, 2916 bls. wood pulp, 584 tons; Bulkley Dunton & Co., Kersten Miles, ——, 1125 bls. sulphate, 228 tons; Johaneson Wales & Sparre Inc., Kersten Miles, Soraker, 2165 bls. sulphite, 439 tons; ——, Kersten Miles, Hernosand, 1950 bls. sulphite, 325 tons; Castle & Overton Inc., New York, Hamburg, 885 bls. wood pulp, 177 tons; Bulkley Dunton & Co., Sydic, ——, 1500 bls. wood pulp.

WOOD FLOUR

Corn Exchange Bank Trust Co., Rotterdam, Rotterdam, 580 bags; State Chemical Co., Rotterdam, Rotterdam, 600 bags; ——, Stavangerfjord, Frederickstad, 160 bags, 181 bls.

WOOD PULP BOARDS

——, New York, Hamburg, 53 rolls, 20 tons.

PULPWOOD

——, Nordvard, Archangel, 3096 cords.

PHILADELPHIA IMPORTS

WEEK ENDING AUGUST 27, 1932

E. J. Keller Co. Inc., Excelsior, ——, 140 bls. rags; E. J. Keller Co. Inc., Kiel, ——, 332 bls wood pulp; Johaneson Wales & Sparre Inc., Kersten Miles, Svartvik, 3000 bls. sulphite, 508 tons; ——, Kersten Miles, Hernosand, 600 bls. sulphite, 100 tons; F. Weber & Co., Exiria, Genoa, 29 cs. card board.

BALTIMORE IMPORTS

WEEK ENDING AUGUST 27, 1932

1st Natl Bank of Boston, Japanese Pr., Shanghai, 500 bls. tares; Congoleum Nairn Co., West Eldara, Rotterdam, 393 bls. rags; ——, Scanstates, Wiborg, 4450 bls. sulphite, 907 tons; J. Andersen & Co., Kersten Miles, Stugsund, 1000 bls. sulphate, 203 tons; Johaneson Wales & Sparre Inc., Kersten Miles, Svartvik, 1200 bls. sulphite, 203 tons; 1000 bls. chemical pulp, 203 tons; Mead Sales Co., Kersten Miles, Svartvik, 4296 bls. sulphite, 726 tons; Parsons & Whittemore Inc., Kersten Miles, Svartvik, 150 bls. chemical pulp, 25 tons; Bulkley Dunton & Co., Kersten Miles, ——, 6000 bls. wood pulp, 1219 tons; Johaneson Wales & Sparre Inc., Kersten Miles, Soraker, 2015 bls. sulphite, 408 tons; ——, Kersten Miles, Hernosand, 1200 bls. sulphite, 203 tons.

NORFOLK IMPORTS

WEEK ENDING AUGUST 27, 1932

Chase National Bank, West Eldara, Rotterdam, 28 bls. bagging.

NEWPORT NEWS IMPORTS

WEEK ENDING AUGUST 27, 1932

Bulkley Dunton & Co., Kersten Miles, ——, 2500 bls. sulphate; ——, Kersten Miles, Hernosand, 560 bls. sulphite.

BOSTON IMPORTS

WEEK ENDING AUGUST 27, 1932

G. F. Malcolm & Co., Britannic, Liverpool, 4 cs. tissue paper; McLaughlin & Freeman, Britannic, Liverpool, 2 cs. printing paper; Castle & Overton Inc., West Eldara, Rotterdam, 335 bls. wood pulp, 67 tons.

ALBANY IMPORTS

WEEK ENDING AUGUST 27, 1932

Bank of America Natl Assn., Alfred Nobel, Archangel, 2940 cords pulpwood; Bulkley Dunton & Co., Kersten Miles, ——, 6250 bls. sulphate, 1270 tons.

Boston Paper Market Buoyant

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., August 29, 1932.—Improvement which has recently developed in the local paper market has been sustained, and those houses which have experienced no gains continue with the same volume of business. The slightly increased demand during the last two weeks for standard lines of fine papers, such as bonds and ledgers, is regarded as an encouraging sign. Representatives of mills manufacturing fine writing papers report a "better reaction" and a more cheerful sentiment. With buyers for large industrial plants generally away on vacations the latter part of August and until after Labor Day, orders from those sources are naturally lessened, but with many mills in textile and other industries which have been idle for a considerable period resuming operations, the trade expects a greater volume of business from these customers eventually. Wrapping paper continues a little more active, some houses having a very satisfactory amount of orders. In some cases there are a few more orders for kraft, without an increase in the total volume of paper called for. A betterment in specialties and twine continues. The box board market is fair.

The paper stock market has improved considerably as a whole, so that there is more optimism in the trade. One house reports "a big week," with old papers and bagging in the lead. Kraft papers are more active, with the No. 1 grade advancing to .80, compared with a previous quotation of .65 @ .75. It is reported that mills in Holyoke have had a rush of orders and that some increased their business in August 50 per cent over that of the previous month. A dealer says that low-priced cotton stock is likely to advance in sympathy with the cotton market. When cotton is high it pays to garnett certain cotton rags, but when cotton is low these rags find their way to paper mills, so that they are unavailable for the shredders. Due to the fact that some mills are using ground wood pulp, on account of its price, as a substitute for white blank news, quotations for white blank news are lower. This commodity is now quoted at 1.00 @ 1.05, compared with a former range of 1.05 @ 1.10. Some mills which formerly bought from three to four car loads a week are now using wood pulp. Mills using foreign manila rope are reported to be very much less active, so that the price has declined from 1.50 @ 1.60 to 1.40 @ 1.50. It is stated that the demand is gradually dropping. While it was felt a week ago that declines has ceased there seem to be a few exceptions. Solid ledger books are now 1.20 @ 1.40, compared with a previous quotation of 1.30 @ 1.50.

Japanese Paper Production for May

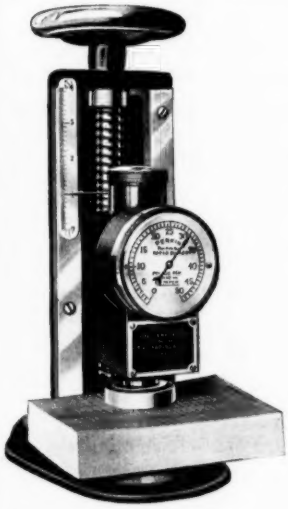
The Japanese Paper Manufacturers' Association reports production by members' mills during May at 55,291 short tons as compared with 54,735 tons in the preceding month and 56,680 tons during the corresponding month in 1931. Production for the five months period aggregated 268,614 tons and sales at 278,410 tons as against 279,108 tons and 279,479 tons respectively last year.

Stevens & Thompson Elect Officers

HOOSICK FALLS, N. Y., August 29, 1932.—The annual meeting of the Stevens & Thompson Paper Company was held this week at which officers and directors for the year were chosen. The following officers were elected: F. L. Stevens, president; F. H. Stevens, vice-president; E. B. Thompson, treasurer, and B. W. Sugden, secretary.

PERKINS PRESSURE BULKER

Co-ordinates sheet count with bulk in inches.



Positive uniform standard for gauging bulk of paper. Simply place sheets between contact faces and clamp down until desired pressure is indicated on the dial. The exact thickness can then be read from the vertical scale.

B. F. PERKINS & SON, INC.,
HOLYOKE, MASS.

SPECIAL
PAPER STARCH

For many years the reliable beater starch. Also STARCHES and GUMS of quality, with economy, for tub and calendar sizing.

Manufactured by

CORN PRODUCTS REFINING COMPANY
17 Battery Place New York, N.Y.

1864 1932

"EXCELSIOR" FELTS

for every grade of

PULP AND PAPER

We continue to maintain at the top the quality of Excelsior Felts, as we have done since we, as pioneers, made the first endless paper machine felts manufactured in America

Seamless felts for fast running.
Satin Style felts for finish.
Special felts to meet every condition.
Send us your felt problems.

KNOX WOOLEN COMPANY
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SOLD BY
BULKLEY, DUNTON & COMPANY
75-77 Duane St., N. Y., and direct

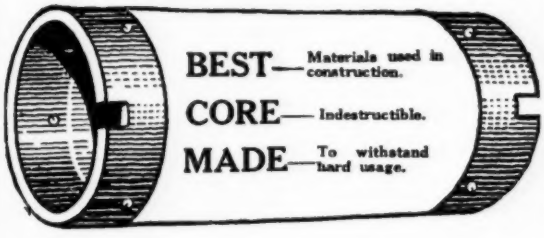
SHIPPING INSURANCE

The Use of

ELIXMAN CORES

protects your rolls and insures their delivery to your customer in perfect condition. They eliminate claims for damages.

SHIPPING INSURANCE



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Canadian Elixman Company
HAMILTON, ONTARIO

Elixman Paper Core Company
CORINTH, N. Y.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, August 31, 1932.

Sentiment in the local paper market continues to improve. Demand for the various standard grades of paper is gradually becoming more persistent. Inquiries for future account are being received in greater volume than for some time past. There is ample room for improvement in the price situation, however.

The news print paper market is only moderately active. Production in the United States, Canadian and Newfoundland mills is being maintained in sufficient volume to take care of current requirements. Accumulations of stocks at the mills are ample. The price situation continues unsatisfactory.

Demand for the various grades of paper board is fairly persistent. Box board is beginning to move at a livelier pace. The fine paper market is exhibiting a stronger undertone. Tissues are going forward in seasonal volume. The coarse paper market is irregular and the kraft wrapping paper situation is unsettled.

Mechanical Pulp

The position of the ground wood market is practically unchanged. With production both at home and abroad generally keyed to consumption there are no undue accumulations and consequently the industry is in a sound statistical position. Quotations are holding to schedule, in most instances.

Chemical Pulp

Conditions in the chemical pulp market are fairly satisfactory. Both domestic and imported grades are in better request. There are also a number of inquiries around for future needs, some of which should materialize into good orders. Prices are generally holding to formerly quoted levels and shading is infrequent.

Old Rope and Bagging

The old rope market is marking time. Demand for both domestic and foreign old manila rope is somewhat restricted at present. Small mixed rope is comparitively quiet. No radical price changes have been reported. The bagging market is fairly steady. Gunny bagging and scrap bagging are moderately active.

Rags

Further improvement was noticed in the domestic rag market. Since the advance in raw materials more interest has been displayed in the various grades of cotton cuttings, with the result that prices are firmer. Roofing grades are also more active. The imported rag situation is little changed.

Waste Paper

With the board mills becoming more active, demand for the lower grades of paper stock is gradually expanding. Prices are generally steady and unchanged. The better grades of waste paper are holding up well. Interest in book stock is more evident than of late. Soft white shavings an hard white envelope cuttings are firmer.

Twine

Trading in the local twine market is brisk, although most of the business transacted during the past week was along routine lines. It is reported on reliable authority that sales are running well up to the average of the preceding year at this period. Prices are generally well maintained, despite keen competition.

Boston Paper Trade Happenings

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., August 29, 1932.—"See our Eclipse Sub. 24" is printed on envelopes made of this paper sent to customers of John Carter & Co., Inc. The envelope bears an illustration of the eclipse, August 31, showing its shadow across the earth.

Storrs & Bement Company have announced the opening of an office in Hartford, Conn., under the direction of H. S. Cashman, at 410 Asylum street. Mr. Cashman was formerly the local representative of the Pepperell Card and Paper Company.

The letterhead of Percy D. Wells has recently been awarded 100 per cent by the publication, *Postage and Mailbag*, which reviews a letterhead in each issue. The letter head is printed on Hornet Linen Bond, made by the Harding Jones Paper Company, Excello, Ohio.

Floyd H. Blackman, secretary and sales manager of the D. F. Munroe Company, is at Chichester, N. H., with his family until after Labor Day.

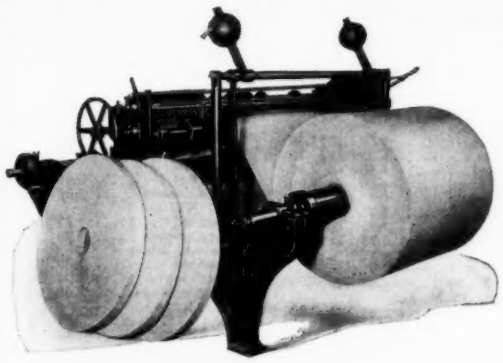
W. W. Langtry, sales manager of the District of Columbia Paper Manufacturing Company, Washington, D. C., called on the trade last week.

Bird & Son are building a paper storage warehouse at the main mill, East Walpole, Mass., 80 x 84, with a pit having a capacity of 1200 bales.

Northwest Appoints Buffalo Distributor

The Northwest Paper Company, makers of the widely advertised Northwest Pedigreed Papers, announces the appointment of one of Buffalo's prominent paper merchants, the Karl C. Franklin Paper Company, as their new distributor for that territory. Klo-kay English Finish and Northland English Finish Book will be stocked in usual weights, and a variety of other Northwest items will be available through this outlet.

Karl C. Franklin states: "The increasing popularity of Northwest papers among printers and paper users in general is a genuine tribute to these paper makers who have made an exhaustive study of the printer's needs, and then have produced a line of papers to satisfy them. Their own experimental printing plant gives all their products the '3rd degree,' thus insuring that uniformity and practicability which is a requisite to carefree, economical production."



HEAVY DUTY SLITTER and REWINDER

Designed to meet the requirements of all users of Automatic Machines that take the stock from the roll, and require a roll of large diameter wound true and solid.

With this slitter, wide and narrow widths cut at the same time are of uniform tension. A roll slit and rewound 1" wide and 48" diameter can be handled without danger of spinning. At very little additional cost per ton paper mills equipped with this Slitter can furnish their customers with paper or board slit and rewound from 1" width and up. Made in three widths: 48"—60"—72".

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AMSTERDAM, N. Y.

Manufacturers of
AUTOMATIC MACHINERY FOR PAPER BOXES AND ROTARY PAPER CUTTING MACHINERY

Sulphur

A FIRST REQUISITE

in

Paper Making

Large Production
Ample Reserves
Prompt Deliveries
Purity 99½%

TEXAS GULF SULPHUR CO.
75 E. 45th Street New York City
Mines: Gulf, Newgulf and Long Point, Texas

QUALITY PULPS

"HAFSLUND BEAR"
Bleached Sulphite

"FORSHAGA"
Bleached Sulphite

"HURUM SPECIAL"
Extra Strong Kraft

"BAMBLE"
Extra Strong Kraft

Fresh Monthly Shipments—No Closed Winter Season

The Borregaard Company
Incorporated
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TRIMBEY MACHINE WORKS

GLENS FALLS, N. Y.

Manufacturers of

WEIGHT REGULATORS
CONSISTENCY REGULATORS
PROPORTIONING AND METERING SYSTEMS
PULP SCREENS—FLOAT VALVES

UNION SCREEN PLATE COMPANY
Fitchburg, Mass., U. S. A. Lennoxville, P. Q., Canada

UNION BRONZE

SCREEN PLATES FOR FLAT SCREENS

Old Plates Reclosed and Re-cut to Accurate Gauge.
Rolled Phosphor Bronze and Copper Plates for Rotary Screens

Sole Manufacturers of the
UNION-WITHAM SCREEN PLATE VAT AND FASTENER

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL.
Wednesday, August 31, 1932.

BLANC FIXE.—The blanc fixe market is moderately active. Prices are holding to schedule, in most instances. The pulp is quoted at from $42.50 to $45.00 per ton, in bulk; while the powder is selling at from 3½ cents to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—Quietness reigns in the bleaching powder market. The contract movement is fairly regular. Quotations are generally holding to previously quoted levels. Bleaching powder is offered at from $1.75 to $2.00 per 100 pounds, in drums, at works.

CASEIN.—The casein market continues steady. Domestic standard ground is quoted at 5¼ cents and finely ground at 6¼ cents per pound. Argentine standard ground is selling at 8 cents and finely ground at 8½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Steadiness prevails in the caustic soda market. Prices are holding to schedule. Solid caustic soda is quoted at from $2.50 to $2.55; while the flake and the ground are selling at from $2.90 to $2.95 per 100 pounds, in large drums, at works.

CHINA CLAY.—The position of the china clay market is practically unchanged. Contract shipments are fairly heavy. Imported china clay is quoted at from $10 to $15 per ton, ship side; while domestic paper making clay is selling at from $5 to $12 per ton, at mine.

CHLORINE.—Some improvement was noticed in the chlorine market during the past week. Demand from the mills is fairly persistent. Prices remain unchanged. Chlorine is quoted at $1.75 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is easier. The grades of gum rosin used in the paper mills are now quoted at from $3.55 to $3.75 per 280 pounds, in barrels, at works; while wood rosin is selling at $2.50 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Trading in the salt cake market is slightly more active. Salt cake is still quoted at from $15 to $16; chrome salt cake at from $12 to $13 per ton, in bulk, at works; while imported salt cake is selling at from $14 to $15 per ton, ship side.

SODA ASH.—The soda ash market is exhibiting a stronger undertone. Prices are generally holding to previously quoted levels. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.00; in bags, $1.25; and in barrels, $1.38.

STARCH.—Conditions in the local starch market are fairly satisfactory for the time of year. The contract movement is seasonal. Special paper making starch is quoted at $2.44 per 100 pounds, in bags; and at $2.71 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Demand for sulphate of alumina is fairly active. The contract movement is normal. Prices are steady. Commercial grades are quoted at from $1.25 to $1.40; while iron free is offered at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues steady. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Most of the business transacted in the local talc market during the past week was along routine lines. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at mine; while imported talc is selling at from $18 to $22 per ton, in bags, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@38.00
Bonds	4.50	@53.25
Index	6.00	@12.00
Writings—		
Extra Superfine	6.50	@15.00
Superfine	6.25	@14.75
Tub sized	4.50	@ 7.00
Engine sized	4.00	@ 5.00
Book, Cased—		
S. & S. C.	5.25	@ —
M. F.	3.75	@ 5.00
Coated and Enamel	6.25	@ 9.75
Lithograph	6.75	@11.25
Tissues—Per Ream—		
White No. 1	.50	@ .70
Anti-Tarnish M. G. only	.65	@ .70
Colored	.70	@ .90
White No. 2	.55	@ .60
Kraft	.65	@ .70
Manila	.55	@ .60
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.00	@ 5.25
No. 2 Wood	3.50	@ 4.00
Butchers	3.37½	@ —
Fibre Papers—		
No. 1 Fibre	4.25	@ 5.50
No. 2 Fibre	4.00	@ 4.75
Common Bogus	1.50	@ 3.00
Screenings	2.00	@ 3.00
Card Middies	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs., No. 1	.09¼	@ —
No. 2	.11¼	@ —
Bleached, basis 20 lbs.	.11¼	@ —
(Delivered New York)		
News, per ton—		
Roll, contract	53.00	@ —
Rolls, spot	53.00	@ —
Sheets	58.00	@ —
Side Runs	38.00	@43.00
Kraft—		
No. 1 Domestic	4.75	@ 6.00
No. 2 Domestic	2.50	@ —
Southern	2.50	@ —
Imported	2.75	@ 3.50
Boards—per ton—		
News	22.50	@25.00
Straw	29.50	@35.00
Chip	22.50	@25.00
Binders' Boards	62.00	@70.00
Standard 85 Test Liner	24.00	@26.50
Sgl. Mla. Lt. Chip	35.00	@37.50
(F. o. b. Mill)		
Wood Pulp Boards	70.00	@80.00

Mechanical Pulp

(On Dock)

No. 1 Imported—		
Moist	19.00	@21.00
Dry	21.00	@22.00
(F. o. b. Mill)		
No. 1 Domestic	18.00	@24.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	2.10	@ 2.90
Easy Bleaching	1.60	@ 1.75
No. 1 strong unbleached	1.40	@ 1.60
Mitscherlich unbleached	1.60	@ 1.75
No. 2 strong unbleached	1.25	@ 1.35
No. 1 Kraft	1.50	@ 1.65
No. 2 Kraft	1.35	@ 1.40
Sulphate—		
Bleached	1.85	@ 2.15
(F. o. b. Pulp Mill)		
Sulphite (Domestic and Canadian)—		
Bleached	2.10	@ 3.75
Easy Bleaching	1.75	@ 1.90
News	1.50	@ 1.65
Mitscherlich	2.40	@ 2.55
Kraft (Domestic)	1.50	@ 2.75
(Delivered Paper Mills)		
Soda Bleached	2.25	@ —

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	4.00	@ 4.25
New White, No. 2	3.00	@ 3.25
Silesias No. 1	3.75	@ 4.00
New Unbleached	5.50	@ 6.00
New Soft Blacks	2.75	@ 3.00
Blue Overall	3.00	@ 3.50
Fancy	1.50	@ 1.75
Washables	1.15	@ 1.40
Mixed Khaki Cuttings	2.50	@ 3.00
Pink Corset Cuttings	2.75	@ 3.25
O. D. Khaki Cuttings	3.00	@ 3.25
Men's Corduroy	1.00	@ 1.25
New Mixed Blacks	2.25	@ 2.50

Old Rags

White, No. 1—		
Repacked	3.00	@ 3.50
Miscellaneous	2.00	@ 2.25
White, No. 2—		
Repacked	1.75	@ 2.00
Miscellaneous	1.50	@ 1.75
Thirds and Blues—		
Repacked	1.50	@ 1.75
Miscellaneous	1.00	@ 1.25
Black Stockings	2.00	@ 2.25
Roofing Rags—		
No. 1	.53	@ .58
No. 2	.48	@ .53
No. 3	.43	@ .48
No. 4	.38	@ .43
No. 5A	.33	@ .38

Foreign Rags

New Rags

New Dark Cuttings	1.40	@ 1.50
New Mixed Cuttings	1.60	@ 1.75
New Light Silesias	3.40	@ 3.50
Light Flannelettes	3.25	@ 3.50
Unbleached Cuttings	5.50	@ 6.00
New White Cuttings	4.25	@ 4.50
New Light Oxfords	3.75	@ 4.00
New Light Prints	2.00	@ 2.25

Old Rags

No. 1 White Linens	5.25	@ 5.50
No. 2 White Linens	4.50	@ 4.75
No. 3 White Linens	3.25	@ 3.75
No. 4 White Linens	1.75	@ 2.25
No. 1 White Cotton	4.00	@ 4.25
No. 2 White Cotton	3.00	@ 3.25
No. 3 White Cotton	2.25	@ 2.50
No. 4 White Cotton	1.40	@ 1.50
Extra Light Prints	1.90	@ 2.10
Ord. Light Prints	1.60	@ 1.75
Med. Light Prints	1.40	@ 1.55
Dutch Blue Cottons	1.35	@ 1.40
French Blue Linens	1.80	@ 1.90
German Blue Linens	1.70	@ 1.80
German Blue Cottons	1.20	@ 1.25
Checks and Blues	1.25	@ 1.30
Lindsay Garments	.75	@ .80
Dark Cottons	.70	@ .75
Old Shopperies	.55	@ .60
New Shopperies	.60	@ .65
French Blues	1.25	@ 1.30

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.00	@ 1.10
Domestic	1.15	@ 1.25
Wool Tares, light	.80	@ .85
Wool Tares, heavy	.80	@ .85
Bright Bagging	.75	@ .80
Small Mixed Rope	.80	@ .90
Manila Rope—		
Foreign	1.50	@ 1.60
Domestic	1.50	@ 1.75
New Burlap Cut	1.65	@ 1.75
Hessian Jute Threads—		
Foreign	2.60	@ 2.75
Domestic	2.80	@ 3.00

Old Waste Papers

(F. o. b. New York)

Shavings—		
White Envelope Cuttings	1.60	@ 1.70
Ordinary Hard White No. 1	1.30	@ 1.40
Hard White No. 2	1.25	@ 1.30
Soft White No. 1	1.25	@ 1.35
Flat Stock—		
Stitchless	.50	@ .60
Overissue Mag	.50	@ .60
Solid Flat Book	.45	@ .50
Crumpled No. 1	.35	@ .40
Solid Book Ledger	1.50	@ 1.75
Ledger Stock	.45	@ .55
New B. B. Chips	.20	@ .25
Manilas—		
New Env. Cut	1.25	@ 1.35
New Cuttings	1.00	@ 1.05
Extra No. 1 old	.80	@ .90
Print	.35	@ .40
Bogus Wrapper	.30	@ .35
Container	.25	@ .30
Old Kraft Machine—		
Compressed bales	.60	@ .70
News—		
No. 1 White News	1.15	@ 1.20
Strictly Overissue	.35	@ .40
Strictly Folded	.23	@ .28
No. 1 Mixed Paper	.15	@ .20

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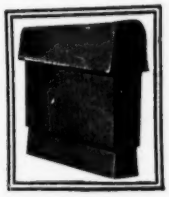

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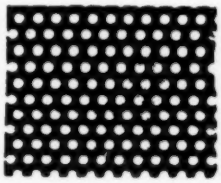

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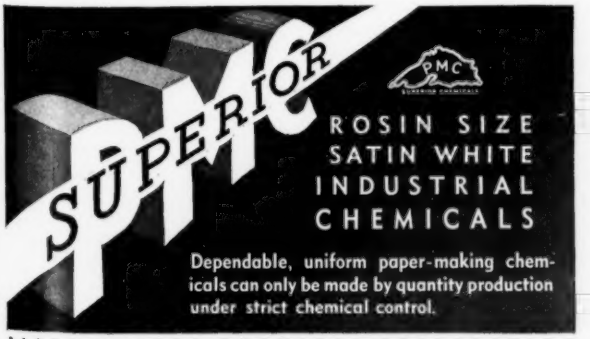

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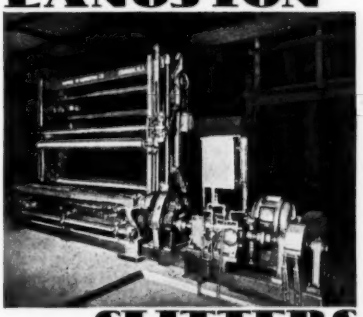

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Twines
(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian, 18 basis	.36	@	.37
Finisned Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Ply—			
No. 1	.15½	@	.16½
No. 2	.11¾	@	.12¾
Tube Rope—			
4-ply and larger	.09¾	@	.11¾
Fine Tube Rope—			
4-ply	.11	@	—
3-ply	.12	@	—
2-ply	.13	@	—
Paper Makers Twine			
Balls	.08¼	@	.10¼
Box Twine, 2-3 ply	.07	@	.08
Jute Rope	.09	@	.10
Amer. Hemp, 6	.27	@	.29
Java Sisal—			
No. 1 Basis	.10	@	—
No. 2 Basis	.09	@	—
New Zealand Sisal	.10	@	—
Sisal Lath Yarn—			
No. 1	.12	@	.14
No. 2	.10	@	.12
Manila Twine	.23	@	.28

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.04	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.07	@	.18
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¼
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	3.50	@	4.50
Southern Kraft	2.62½	@	—
No. 2 Kraft	2.62½	@	—
Wood Tag Boards	.04½	@	.06¼
Sulphite Screenings	.03	@	.03¾
Manila Tissue	.07	@	.07¼
White Tissue	.07¼	@	.07½

(Delivered Central Territory)

News, per ton—			
Rolls, contract	53.00	@	—
Sheets	58.00	@	—
Boards, per ton—			
Plain Chip	30.00	@	35.00
Solid News	32.50	@	37.50
Manila Lined Chip	40.00	@	45.00
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.50	@	1.55
No. 1 Hard White	1.40	@	1.45
No. 1 Soft White	1.00	@	1.10
Ledger & Writings	.45	@	.55
Solid Books	.25	@	.30
Blanks	1.00	@	1.05
Krafts	.70	@	.80
New Kraft Cuts	1.15	@	1.25
Manila Env. Cuts	1.25	@	1.30
Ex. No 1 Manila	.90	@	1.00
Print Manila	.30	@	.35
Overissue News	.30	@	.35
Old Newspapers—			
No. 1	.25	@	.30
Mixed Papers—			
No. 1	.15	@	.20
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.04	@	.40
Ledgers	.06	@	.40
Writings—			
Superfine	.10	@	.18
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Fine No. 3	.05½	@	.18
Book, M. F.	.04¼	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06	@	.16
Coated Lithograph	.06	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.06	@	.09
Manila Sul., No. 1	.03	@	.05
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¾	@	.04¼
Southern Kraft No. 1	—	@	.04
Southern Kraft No. 2	—	@	.03¾
Common Bogus	.03	@	.04

(Delivered Philadelphia)

News Print Rolls	58.00	@	62.00
Straw Board	50.00	@	—
News Board	22.00	@	25.00
Chip Board	21.00	@	23.00
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	73.00	@	75.00
No. 2, per ton	62.00	@	65.00
Carload lots	60.00	@	65.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.03½	@	.04
New White, No. 2	.02½	@	.04
Light Silesias	.02½	@	.03
Silesias, No. 1	.03	@	.03½
Black Silesias, soft	.02½	@	.03
New Unbleached	.05	@	.05½
Washable, No. 1	.01	@	.01½
Blue Overall	.03	@	.03½
Cottons—According to grades—			
Washable, No. 2	.01	@	.02
New Blue	.01	@	.02
Fancy	.01½	@	—
New Black Soft	.02	@	.03
New Light Seconds	.01	@	.02
New Dark Seconds	1.50	@	1.75
Khaki Cuttings—			
No. 1 O.D.	.03	@	.03½
No. 2 Mixed	.02½	@	.03
Corduroy	.02	@	.02½
New Canvas	.03½	@	.04
New Black Mixed	.02½	@	.03

Domestic Rags (Old)

White No. 1—			
Repacked	2.50	@	3.00
Miscellaneous	1.75	@	2.00
M. G.	3.00	@	3.50
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	2.00	@	3.50
Roofing Stock—			
Foreign No. 1	.50	@	.75
Repacked	.70	@	.80

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	—
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	1.80	@	1.90
No. 2 Hard White	1.60	@	1.70
No. 1 Soft White	1.50	@	1.65
No. 2 Soft White	1.30	@	1.45
No. 1 Mixed	.40	@	.50
No. 2 Mixed	.35	@	.40
Solid Ledger Stock	1.00	@	1.10
Writing Paper	.80	@	.90
No. 1 Books, heavy	.55	@	—
No. 2 Books, light	.40	@	—
No. 1 New Manila	1.00	@	1.15
No. 1 Old Manila	.90	@	1.00
Print Manila	.40	@	—
Container Manila	.40	@	.45
Old Kraft	.85	@	.95
Common Paper	.15	@	.20
No. 1 Mixed Paper	.20	@	.25
Straw Board, Chip	.25	@	.35
Binders Board, Chip	.25	@	.35
Corrugated Board	.30	@	.35
Overissue News	.35	@	.40
Old Newspaper	.20	@	.25

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.05½	@	.11½
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¼	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04½	@	.05½
No. 2 Kraft	—	@	.02½

(F. o. b. Boston)

Southern Kraft	—	@	.02½

(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)

Common Bogus	.02	@	.02¾

(Delivered New England points)

News Print, rolls	—	@	52.50
Straw Board, rolls	.009	@	35.00
Straw Board in Sheets, basis 35s to 70s	—	@	40.00
Filled News Board	.25.00	@	30.00
Chip Board	—	@	25.00
Chip Board (Creasing)	25.00	@	27.50
Single Manila Lined Chip	—	@	35.00
Single White, Patent Coated News Board—			
Binder	45.00	@	55.00
Wood Pulp Board	70.00	@	75.00
Binder Boards	62.00	@	75.00

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Soft White	—	@	1.50
No. 1 Old Manila	.65	@	.75
No. 2 Mixed	.50	@	.55
No. 1 Mixed	.75	@	.85
Solid Ledger Books	1.20	@	1.40
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.60	@	.70
No. 1 Books, heavy	.50	@	.60
No. 1 Books, light	—	@	.30
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.25	@	1.30
No. 1 Old Manila	.55	@	.65
White Blank News	1.00	@	1.05
Kraft No. 1	.80	@	—
Manila	.80	@	.90
No. 1 Mixed Papers	.12½	@	.15
Print Manila	.30	@	.40
Overissue News	.35	@	.45
Old Newspapers	.22½	@	—
Box Board, Chip	.17½	@	.20
Corrugated Boxes	.17½	@	.22½
Screening Wrappers	.25	@	.32½

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.00
Domestic	.75	@	.80
Manila Rope—			
Foreign	1.40	@	1.50
Domestic	—	@	1.60
Transmission Rope	1.00	@	—
Mixing String	—	@	.30
Jute Rope	—	@	.75
Jute Carpet Threads	.25	@	.30
Bleachery Burlap	1.75	@	2.00
Scrap Burlap	.60	@	1.00
No. 1 Scrap Burlap	.80	@	.90
Scrap Sisal	.60	@	.75
Scrap Sisal for shredding	.90	@	1.00
Wool Tares, heavy	.60	@	.65
New Burlap Cutting	.75	@	.90
Australian Wool Pouches	—	@	1.50
Heavy Baling Bagging	.80	@	1.00
Paper Mill Bagging	.50	@	.60
Bagging No. 2	.20	@	.25
No. 1 Burlap	1.80	@	2.00

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	—	@	.01½
New White No. 1	.03¾	@	.04
New White No. 2	.02¾	@	.03¾
Silesias No. 1	—	@	.03
New Black Silesias	.02½	@	.02¾
New Unbleached	.05	@	.05¼
Fancy	—	@	.02½
Washable	—	@	.01¾
Cottons—According to grades—			
Blue Overalls	—	@	.03¾
New Black, sort	.04	@	.04½
Khaki Cuttings	.03	@	.03½
O. D. Khaki	.03½	@	.03¾
Corduroy	.02¾	@	.03
New Canvas	—	@	.05
B.V.D. Cuttings	.04	@	.04¼

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White No. 2—			
Repacked	.02¾	@	.02¾
Miscellaneous	.02	@	.02¼
Twos and Blues	.90	@	1.00
Thirds and Blues—			
Repacked	.75	@	.85
Miscellaneous	.70	@	.75
Black Stockings	2.00	@	2.25
Roofing Stock—			
No. 1	.32½	@	.37½
No. 2	.30	@	.35
No. 3	.25	@	.30

Foreign Rags
(F. o. b. Boston)

Dark Cottons	.40	@	.50
New No. 1 White Shirt Cuttings	3.75	@	4.00
Dutch Blues	1.25	@	1.50
New Checks & Blues	2.25	@	2.50
Old Fustians	—	@	.85
Old Linsey Garments	.55	@	.65

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10½	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.10¾	@	—
No. 2 Colored	.09	@	.10½
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (Carloads)	6.65	@	—
No. 3 M. F. (Carloads)	6.20	@	—
No. 1 S. C. (carloads)	7.15	@	—
No. 3 S. C. (carloads)	6.65	@	—
No. 4 S. C. (carloads)	5.70	@	—
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	11.50	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.40	@	—
White Wrap	3.00	@	—
"B" Manila	4.90	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.75	@	—
Kraft No. 2	5.40	@	—

(Delivered Toronto)

News, per ton—			
Rolls (contract)	52.50	@	53.00
Sheets	57.50	@	—

Pulp
(F. o. b. Mill)

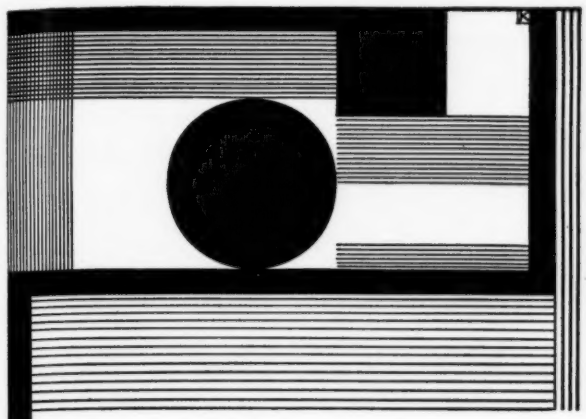
Ground Wood	18.00	@	20.00
Sulphite easy bleaching	40.00	@	—
Sulphite, news grade	38.00	@	—
Sulphite, bleached	48.00	@	58.00
Sulphate	55.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	1.80	@	—
Soft White	1.40	@	—
White Blk. News	1.25	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	—
Light and Crumpled Book Stock	.80	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut	1.25	@	—
Printed Manilas	.55	@	—
Kraft	1.75	@	—
News and Scrap—			
Strictly Overissue	.50	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09½	@	.10
Fancy Shirt Cuttings	.06	@	.06¾



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PAPER TRADE JOURNAL

ESTABLISHED 1872

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

SIXTY FIRST YEAR

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Want and For Sale Advertisements, 52-53

A new leaf for Bookpapers NEWSPRINT and ..FRUIT WRAP

A Seven-League Stride to brighten groundwood paper stock has been made by perfection of the

HYDROSULPHITE PROCESS

of bleaching developed and recently patented by the Great Western Electro-Chemical Company.

A year's experimentation in actual mill operation has conclusively demonstrated the revolutionary effectiveness of the new process. From the darker hemlock of the Pacific Northwest, and even from discolored woods, zinc hydrosulphite has produced a brighter sheet of groundwood than has ever been thought of with the older forms of treatment such as sodium bisulphite or sulphite cooking liquors, and the treatment has consistently been completed *in a few minutes,* eliminating the costly 18- to 20-hour retention period previously necessary. Zinc hydrosulphite is already standard practice in several Pacific Coast mills.

No special equipment is required for the application of the new process. The hydrosulphite may be introduced easily through your present equipment, either close to the paper machine, in the beaters or mixers, or into the conveying pipes of a continuous system. The quantity necessary is never more than 1½% of the weight of the stock, and in some cases runs as low as one-tenth of 1%. Since hydrosulphite has only a slight effect on the pH value of the pulp all corrosion is avoided.

For the cheaper grades of book and magazine papers, newsprint, and fruit wrap, the hydrosulphite process makes tremendous savings and produces a better sheet than is possible with any other bleaching reagent. You eliminate heating costs, because the new treatment works at ordinary temperatures. You save valuable time by reducing hours for treatment to minutes. You provide a better product, at a price, to meet the increasingly exacting demands of present-day publishing, advertising, and package display.

Experimental quantities of zinc hydrosulphite can be supplied in drums of 50, 100 and 200 pounds. We shall be glad to answer inquiries with detailed information on the new treatment.

U. S. Patent No. 1,873,924
Canadian Patent
No. 307,440

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SEATTLE — LOS ANGELES

LIQUID CHLORINE **BLEACH** **AMMONIA** **ZINC HYDROSULPHITE**